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WE GUARANTEE, that of this issue more than 9,000 copies were
printed; that of those more than 9,000 copies 7,535 were mailed to regu-
lar paid subscribers to the Railway Age Gazette, weekly edition, and
Railway Age Gazette, Mechanical Edition; 224 were provided for counter
and news companies' sales; 241 were mailed to advertisers and corre-
spondents; and 1,000 were provided for distribution at Atlantic City.

The question of an effective brake beam safety hanger is one
which has been given much consideration, and as yet has not
been settled in a satisfactory manner.

Brake Beam Safety Hangers

The form which has been generally used
is a chain having two or three long $\frac{3}{8}$
in. links, which is given little attention
so long as it stays together and can be
seen to be in place on the truck. The strength of this hanger
is inadequate at any time, and when called upon to perform its
function, in nine cases out of ten the metal of the links will be
worn to one-half or one-fourth of the original thickness. The
conclusion of the committee on car trucks as to the use of a
safety hanger is fully justified until a form of safety hanger
has been brought out which will retain its full strength indefi-
nitely.

There was an incident in the discussion on car trucks yesterday
morning, that may have reminded some of the earlier days of

The Car Truck Report

the association when there were such
diametrically opposite opinions ex-
pressed as to the same things. This has
been recognized as due to the differences
of conditions and experience. So, when
the committee recommended a clearance of $\frac{1}{4}$ in. for side bear-
ings, and it was straightway challenged as being too small,
and instances were cited where it was conclusively proven that
 $\frac{3}{8}$ in. was proper, the atmosphere of the old conventions was
recalled. But we look for the cause in such differences today,
much more readily than we did, and it was straightway brought

to the surface that the committee had based its recommenda-
tion on 50 in. centers, while the necessity for the $\frac{3}{8}$ in. clear-
ance was based on 60 in. centers. The $\frac{1}{4}$ in. at 50 in. centers
would open out to about 5-16 in. at 60 in. so that it looks as
though the recommendations were about right. In fact, these
committees have a way of making very few mistakes in their
recommendations and members have so learned the fact, that
adverse criticisms are becoming more and more rare. Cer-
tainly in this car truck report the association has a document
well worth while.

With the prospect of record crops of wheat and corn indicated
by the government reports, there has been among equipment

Freight Equipment Orders

manufacturers strong hope that the rail-
ways would begin ordering freight cars to
take care of the handling of the crops.
While car surpluses have been generally
reported, it has not been considered prob-
able that there would be sufficient cars to handle the grain
traffic without many of the roads adding materially to their
car equipment. The continued uncertainty as to the outcome
of the rate advance case has been a prime factor in holding the
roads back from placing large orders, but there have been
expressions of surprise from the equipment market that there
has been, up to now, no tendency to commence ordering cars
to take care of the crop movement. The first tangible evidence
of a change in conditions came last week, when the New York
Central placed orders for 6,200 cars and the Illinois Central
for 3,000. The latter order is made up of 1,000 box cars from
the American Car & Foundry Company, 1,000 from the Pressed
Steel Car Company, 500 from the Standard Steel Car Company
and 500 from the Haskell & Barker Car Company. There have
been many expressions of confidence that these orders mark
the beginning of improved conditions in the railway supply
market.

The committee on Train Lighting, in speaking of standard
pulley fits for axle-generator shafts and standard generator

Co-Operation Among Mechanical Associations

pulleys, recommends that it be instructed
to confer with the committee of the Asso-
ciation of Railway Electrical Engineers
with a view of obtaining designs to be
submitted to the association as recom-
mended practice. Such co-operation among the various asso-
ciations should be productive of good results. It is better
than having members of a committee call on the local depart-
ment foremen for detailed advice concerning such matters,
for when a committee of one association confers with a com-
mittee of another, a much broader viewpoint will be obtained,
and the work will be representative of a larger body of men.
It should also create interest and stimulate a definiteness of
purpose among the minor associations; it gives them some-
thing to work for, and provides concrete results to show for
their work. The larger associations will also be benefited, as
they will get the expert advice of men who have specialized
in their departments. This practice of having joint committees
with other associations should be encouraged and developed
whenever the opportunity presents itself.

On Wednesday a report was presented that stated that enough
work had been done on brake shoes to warrant the issuing of

The Standard Coupler

a final report so far as conclusions were
concerned, and yesterday came the indica-
tions that another piece of work of long
standing was nearing completion. The
masterly report of the committee on
couplers and draft rigging is a report of progress that is
seldom equaled. No one who has not been engaged in the
gathering of the data and the compilation of it into a report
can realize the immense amount of detail work required to

put it in shape. That the Association appreciated it was shown by the vote of thanks tendered to Mr. Kleine and his associates; a vote that was most thoroughly deserved. It has been the dream of many years to bring about this unification of design, and produce a standard coupler, and suggestions to that end have been in the air for the past fifteen years; but, somehow, either the time was not ripe, or commercial interests were too strong to make the desired results possible. Now the manufacturers and users have come together in agreement on experimental designs, and the indications are that they will be given a thorough and exhaustive trial during the next year. Representatives of a number of roads pledged themselves to the work of trial, and to the listener it seemed as though the preliminary orders for 5,000 would be given very soon. We have been moving by such leaps and bounds in train equipment and loads that, had the first suggestions for the standard coupler been brought to fruition, the results would have been baby carriage work as compared with the proposals of the present committee and their exhibit on the pier. While we hope and expect the standard coupler design to be submitted to letter ballot at the convention of 1915, there is no indication that the work of the committee will end with that accomplishment.

With the M. C. B. code of rules for overhead inspection of box cars accepted by the American Railway Association, it is to be hoped that this important feature will be given the attention it deserves. We all know what condition a car should be in for transporting different commodities, and we all know how desirable it is to have such a car. We all know also what a temptation it is for an agent to offer a car to a shipper that he knows isn't exactly fitted for the purpose that shipper wants it for, hoping to keep the shipper satisfied, and at the same time trusting to luck that the goods will be safely delivered. The mechanical department is often held responsible for defective box cars for special loading when the real culprit is the agent who delivers the car to the shipper. Cars can be inspected and classified forever to no advantage, if the agent in assigning them will not use some judgment in providing cars suitable for the commodities to be carried. By this is meant not only selecting the good cars for perishable or special commodities, but also seeing that the very best car in the yards is not provided for freight that may be carried just as well in a car that is not in as good condition. Failure to do this is as bad a practice as that of providing poor cars for perishable material, for when all the good cars are used for non-perishable freight there will be no good cars left for the perishable freight. In other words, there must be strict co-operation between all the departments having to do with the assignment and handling of cars, and judgment should be used in choosing cars for carrying the different kinds of commodities, with a view of conserving the car supply and saving the good cars for the more special work. It is to be hoped that the American Railway Association in interesting itself in this problem will see to it that the proper co-operation is obtained.

EXPERIMENTAL STANDARD COUPLER

THE committee on Coupler and Draft Equipment is to be congratulated on the work it has done for the association in developing two experimental types of couplers, from which a standard is to be selected. The work of the committee will stand as a monument to the Master Car Builders' Association, and indicates the possibilities the association has in improving freight car design.

The committee has devoted considerable time and the best of talent to the work of establishing these experimental types. It has provided a coupler that will stand an ultimate load of at least 75% over the couplers previously used

before the investigation commenced, at the same time increasing the ultimate loads per pound weight of coupler over 10%.

These new couplers are, therefore, a decided improvement over those that have been used in the past. Both of the couplers were tested on a service testing machine, and given a test equivalent to 82 years' wear, disregarding the effects on the operating parts due to strain received in regular service. Thus the committee has done what it can to determine the serviceability of the couplers, and it remains for the railroads to do what they can to find out what the couplers will do in actual service. So far 1,095 couplers of the Type A and 1,109 of the Type B have been placed in service. Of this number the Norfolk & Western has purchased 764 Type A couplers and 789 Type B couplers, thereby showing its confidence in the work of the committee and its disposition in its work. It behooves other roads to show as much interest, and to aid the committee in its work in a similar way.

It is to be hoped that all the railroads belonging to the Master Car Builders' Association will respond to the appeal of the committee and place as many of the couplers in service as practicable.

SHIPPERS AND THE LOADING RULES

IN the discussion on the rules for loading materials, in the Thursday morning session, considerable interest centered on the trouble experienced on a number of roads due to improper loading. The Lake Shore has had what amounted to an epidemic of bulging and broken side doors, some of the latter having scraped passenger trains, a condition serious enough on any road, but especially so on a road with the number of fast passenger trains that the Lake Shore operates. Several members spoke of the difficulties which have arisen because of shippers not taking sufficient pains to properly secure the lading in cars, some shippers even going to the extent of threatening to transfer shipments to competing lines. D. R. MacBain suggested that the matter be taken up with the American Railway Association in an effort to have all roads insist on shippers complying with the rules.

It is difficult to tell just what can be done to remedy this condition, but whatever steps are possible should be taken. The Niagara Frontier Car Inspection Association, in a check made last year of several thousand cars which were set out for load adjustment, found 70% of the cases were on account of the lading being against the side doors because of improper loading. The matter was at that time called to the attention of the General Managers' Association; but the recommendation of the Inspection Association that agents be cautioned to carefully instruct shippers in the proper methods of loading, would seem worthy of the most careful consideration. It is improbable that the bad practices can be eliminated in this way, but diplomatic treatment of the matter by agents should materially reduce the number of cases. Moreover, if a representative of the car department were called into conference with a number of agents from time to time, it would greatly assist the latter in obtaining a knowledge of the loading rules.

No agent can be expected to turn away business because the shipper refuses to comply strictly with these rules, but it is a matter of "safety first" to place shipments in good condition for moving in trains; if the loads are not received in proper shape it means expense for the car department to put them so. It is most unfortunate that there are roads that are willing to accept shipments that are improperly loaded, and if any concerted action can be arranged to compel all shippers to load cars in accordance with the M. C. B. rules, there would seem to be ample justification for it.

PROGRAM FOR THE WEEK

MASTER CAR BUILDERS' CONVENTION

FRIDAY, JUNE 12

9.30 A. M. to 1.30 P. M.

Discussion of reports on:

Damage to freight by unloading machines	9.30 A. M. to 10.00 A. M.
Specifications and tests for materials	10.00 A. M. to 10.30 A. M.
Car construction	10.30 A. M. to 11.00 A. M.
Retirement of 40,000 and 50,000 lb. capacity cars from interchange service	11.00 A. M. to 11.30 A. M.
Unfinished business; reports of committees on correspondence, resolutions, and such other committees as may be named during the convention	11.30 A. M. to 11.45 A. M.
Election of officers	11.45 A. M. to 1.30 P. M.

FRIDAY, JUNE 12

10.30 A. M.—*Orchestral Band Concert.* Entrance Hall, Million Dollar Pier.

3.00 to 5.00 P. M.—*Bridge Party and Concert.* Entrance Hall, Million Dollar Pier.

9.00 P. M.—*Orchestral Band Concert.* Entrance Hall, Million Dollar Pier. The entertainment committee has something "up its sleeve" and claims that this will be its "star" performance. This is all we can get out of them, but knowing the committee as we do, we feel free in guaranteeing a surprise.

LOST

Badge 2462 has been lost by C. P. McGinnis. Please return to him at the Pyle National Electric Headlight Company's booth.

C. A. Seley has lost his Master Mechanics' badge, No. 538. Finder will please return to him at booth 174, or the office of the Daily Railway Age Gazette.

TRANSPORTATION COMMITTEE

George H. Porter, chairman of the Transportation Committee, has called a meeting of the committee at 12 o'clock noon today at the entrance to the pier. Be there. Start on time.

R. S. M. A. NOMINATIONS

The nominating committee of the Railway Supply Manufacturers' Association has placed in nomination for the presidency J. Will Johnson, general manager of the Pyle-National Electric Company of Chicago, and for the vice-presidency LeGrand Parish, president of the American Arch Company, New York. The election will take place at the annual meeting of the association, which will be held in the Convention Hall on the Million Dollar Pier, Saturday, June 13. The time will be announced tomorrow.

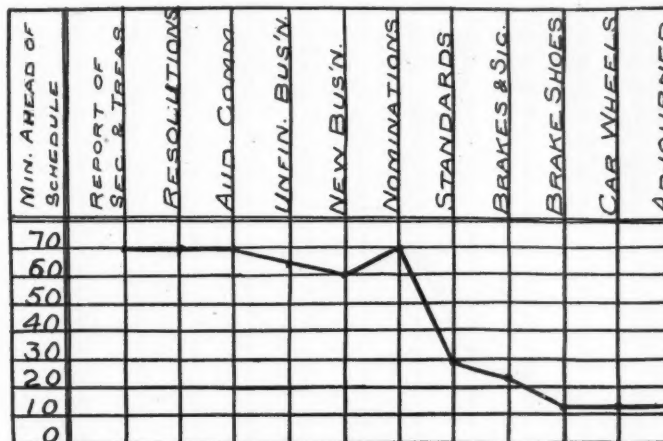
MEETING OF ADVERTISING INTERESTS IN RAILROAD FIELD

A plan is on foot to have a dinner on Saturday evening, at the Marlborough-Blenheim, at 6 o'clock, to which both buyers and sellers of advertising interests in the railway industry are invited. The plan is to discuss various phases of constructive advertising means and methods, with strict reference to the railway field. A more extended notice will appear in tomorrow's issue.

JOE TAYLOR, EFFICIENCY ENGINEER

When the efficiency engineer fad started up a few years ago, and everybody who didn't have a good job, or hadn't made good, hung out an efficiency engineer sign and started to try to drum up business, staid and conservative Joe Taylor looked on with a grin and kept a close watch on his pocketbook.

How are the mighty fallen! Now he is hard at work studying the philosophy of Emerson (Harrington), and practicing on the M. C. B. Association. As proof positive of this assertion we reproduce herewith a diagram that Joe surreptitiously made during the Wednesday morning session and which he dropped shortly after leaving the convention hall on that day. It shows that while the members were fresh and rested, business went through with a boom under



Joe Taylor's Time Study of Wednesday Morning's Session

the generalship of President Barnum, and with Joe "heaving the coal." About the time "Standards" were reached clinkers started to form and the steam pressure fell off. In spite of it, however, the work of the first session went off ahead of the schedule.

Yesterday the performance was equally interesting, but we couldn't catch up with Joe's chart. A bad start was made, but by speeding up, the schedule was bettered in spite of the fact that the train was flagged half way over the division by the introduction of a special discussion on the standard box car.

COMPARATIVE REGISTRATION FIGURES

Following are the registration figures for the past four years for the second day of the convention. In comparing them it must be remembered that M. C. B. and M. M. conventions alternate each year, so that the figures for this year are strictly comparable only with those of two years ago:

	1911	1912	1913	1914
Members M. C. B. & M. M.	562	294	459	528
Special Guests.....	251	278	235	274
R. R. Ladies.....	387	238	289	244
Supply Ladies.....	325	186	256	388
Supply Men.....	1469	1297	1405	1216
Totals.....	2994	2293	2644	2650

SPECIAL TRAINS HOME

If a sufficient number of reservations are secured to warrant it, the Pennsylvania and the Reading Central Railroad of New Jersey will run special trains to New York at the close of the conventions, Wednesday, June 17. These will leave at 3:30 p. m., and if necessary will run in two or more sections to meet the demands. Leave your names at the information bureau as soon as possible in order that the railroads who are extending this courtesy may have sufficient

time to provide equipment and facilities for a comfortable trip.

A special Chicago train will leave over the Pennsylvania at 2 p. m., on Wednesday, arriving at Chicago at 5 p. m. the following day—provided a sufficient number of passengers are obtained to warrant doing so.

GOLF TOURNAMENT PRIZES

The prizes for the golf tournament which will be held next Sunday, will be on exhibition at the entrance to the Million Dollar Pier, on Saturday morning.

BRIDGE PARTY TO-DAY

The Entertainment Committee wishes to announce that the first bridge party and concert will commence promptly at 3 o'clock on Friday afternoon in the entrance hall of the pier. Twelve handsome prizes will be awarded to those contestants having the twelve highest scores. High score will have the first choice of the prizes; second best score, the second choice and so on. It is requested that the players be ready for playing promptly on time.

SECRETARY McGINTY ARRIVES

Secretary McGinty of the Interstate Commerce Commission came over from Washington yesterday afternoon, getting to Atlantic City at about five o'clock. He expects to remain here for several days, although it is quite possible that pressure of work at Washington may cause him to return earlier than he expected. Mr. McGinty made his first visit to the conventions at Atlantic City last year. As may be imagined he has had an exceptionally busy year and will undoubtedly be glad when vacation time comes. The Secretary has made many friends among the mechanical department officers of our railways, and he had a busy time last evening meeting with them and exchanging greetings on the pier.

WISCONSIN MEN NOTICE

University of Wisconsin men in attendance at the convention are asked to leave their names at the office of the *Railway Age Gazette* in space No. 1 to the right as you enter the pier. It is proposed to hold a get-together lunch, and those who register will be notified as to the place of meeting and the time at which it will be held either by personal notice or through the columns of the *Daily Railway Age Gazette*. A number of the alumni of other colleges have held a number of very successful meetings of this sort. There are a large number of Wisconsin men in attendance at the convention, and it is expected to make this the first of a series of successful annual meetings.

M. C. B. INFORMAL DANCE

The informal dance on the Million Dollar Pier last night was very largely attended, over 700 being present. The program consisted of 22 dance numbers. The dance cards were most attractively gotten up, in an artistic form. A feature of the evening was a special number consisting of fancy dancing by Miss Wynn and Mr. Evans. Those present voted it the most delightful affair of this sort which has ever been held on the steel piers.

The affair was in charge of a sub-committee of the Entertainment Committee, of which George R. Carr was chairman. The other members of the committee were: Roger J. Faure, J. M. Crowe, C. D. Jenks, G. E. Ryder, W. K. Krepps, Mrs. A. Fenton Walker, Harry F. Lowman.

LITTLE INTERVIEWS

Asked for his opinion as to how railroad conditions could be improved in this country as compared with those in Europe, H. W. Jacobs, who spent a considerable amount of time on the Continent last year, had this to say:

"The minor railway officer on practically all of the European railroads is paid a much better salary than men in similar positions in this country and all higher railway officers are given a considerably greater amount of authority and hold a far more dignified position than their compatriots on this side.

"On some of the European railroads, and particularly on those in Hungary, far more attention is also paid to the selecting and training of men than is true on the railroads generally in this country. A position on a railway over there is so much more attractive and desirable than in industrial concerns that it is very difficult for an outsider to secure even a very minor position in the service, the first opportunity always being given to the sons of employees already enlisted. As a rule, too, over there a man is proud of the fact that he is an employee of a railway, and this has developed a splendid *esprit de corps* throughout the organization on most of the foreign roads. Men seem to think there is greater dignity attached to a railroad position over there than here. As to just why this is so it might be rather difficult to say. I think one of the foremost railroad officials of this country covered this point very clearly some time ago when, in the course of an interview, he remarked that it was a pity that in the general arrangement of things our railroads here in America did not hold out the inducements to their mechanical men that seemed calculated to bring out their best efforts."

PROPOSED MECHANICAL ROPEWAY FOR TEA GROWERS IN INDIA.—

At the instance of various associated tea and rubber estates in the native state of Travancore, a survey has been made for a mechanical ropeway designed for transportation over a route in the productive Peermade district where the curves and gradients render motor or other traction methods impossible. It is estimated that the cost of the proposed ropeway plant will be from \$60,000 to \$75,000 to be borne primarily by the owners of about 6,000 acres of cultivated land in the district, who, moreover, entertain hopes that the Travancore government, as well as additional neighboring estates, will be sufficiently attracted by the merits of the project, to share in the expense. The system will undoubtedly benefit the extensive tea plantations in the section because it will constitute a great saving in the present excessive cost of carriage by bullock and entirely obviate such congested conditions as at times result because of lack of ready transportation facilities.

AUSTRALIAN RAILWAY ELECTRIFICATION.—It is reported that work in connection with the Melbourne electrification is making satisfactory progress. Contracts have recently been let for the boiler house equipment and steel work for the buildings, for the complete turbo alternators, for the equipment of the motor coaches, for the substation equipment and the switch gear for the substations and power house and for the condensing plant for the power station, the total expenditure on the various contracts being figured at \$8,500,000. Tenders have also been invited for the overhead track equipment, including the bonds for the rails and for the apparatus necessary for continuing the existing track circuits, pending the development of the complete scheme of automatic signaling and for the transmission cables. The power station will be supplied from coal obtained from the state coal mines at Worthaggi and it is estimated that the annual consumption will be 120,000 tons. There seems every possibility that the power station will be completed early in 1915 and that the first electric train between Broadmeadows and Sandringham, will be in operation in 1915 also.

Master Car Builders' Association Proceedings

Reports on Couplers, Safety Appliances, Loading Materials,
Overhead Inspection, Trucks, Train Lighting, Tank Cars

Thursday's session was called to order at 9.40 o'clock a. m.
by President Barnum.

COUPLER AND DRAFT EQUIPMENT.

The comparisons and summaries in all the tests made last year showed conclusively that the experimental couplers were much stronger throughout than present types of couplers and that your committee is working along the right lines. As instructed by the Association, this work has been conducted jointly with the coupler manufacturers.

While the convention was in session last year, a series of static pulling tests consisting of two couplers of each design submitted by the coupler manufacturers and exhibited by the committee was instituted at Altoona shops, Pennsylvania Railroad, under the direct supervision of C. D. Young, engineer of tests.

The pulling tests on these couplers were made in the same manner as those reported on last year, viz., by laying the couplers



R. L. Kleine
Chairman, Committee on Coupler
and Draft Equipment

off as shown in Fig. 1 and measuring both deflection and permanent set after each increment of load and tabulating the distortions by so much plus or minus from the original dimensions.

PULLING TESTS OF COUPLERS EXHIBITED AT 1913 CONVENTION

Present standard M. C. B. pulling test is 150,000 lb. Pull with limit knuckle opening of (C) 0.625 in.

Coupler	PERMANENT SET "C" INCHES.			PERMANENT SET "E," INCHES AT		
	At 200,000 Lbs.	At 300,000 Lbs.	At 400,000 Lbs.	150,000 Pounds.	175,000 Pounds.	200,000 Pounds.
	Average Top and Bottom	Average Top and Bottom	Average Top and Bottom			
Tc	.009	.052	.156	0	0	.005
Tc	.046	.102	.261	0	0	0
Td	.192	.121	.205	0	0	.008
Td	0	.055	.243	0	0	0
Uc	.133	.367	.....	.009	.014	.021
Uc	.219	.612	.....	.015	.030	.055
Vb	.119	.494	.....	0	.010	.030
Vb	.141	.672	.....	.015	.033	.050
Wb	.065	.210	.684	0	0	0
Wc	.158	.424	1.195	0	.011	.062
Xc	.074	.168	.412	0	.001	.011
Xd	.134	.210	.447	0	0	0
Ye	.037	.118	.303	0	0	0
Ye	.034	.188	.614	0	0	.007
Yf	.012	.177	.435	0	0	.006
Yf	.111	.227	.617	0	0	.014
Average	.093	.262	.464	.0024	.0081	.022

Note: The average permanent set, E, at 150,000 lb. in the above table is 98.9 per cent. smaller than was found with the present type coupler reported last year.

ANALYSIS OF RESULTS OF PULLING TESTS.

The preceding table gives a comparison in figures of permanent set at "C" (knuckle opening) and "E" (knuckle stretch). These couplers were built to cover the same specifications and were hence considerably reduced to a common basis.

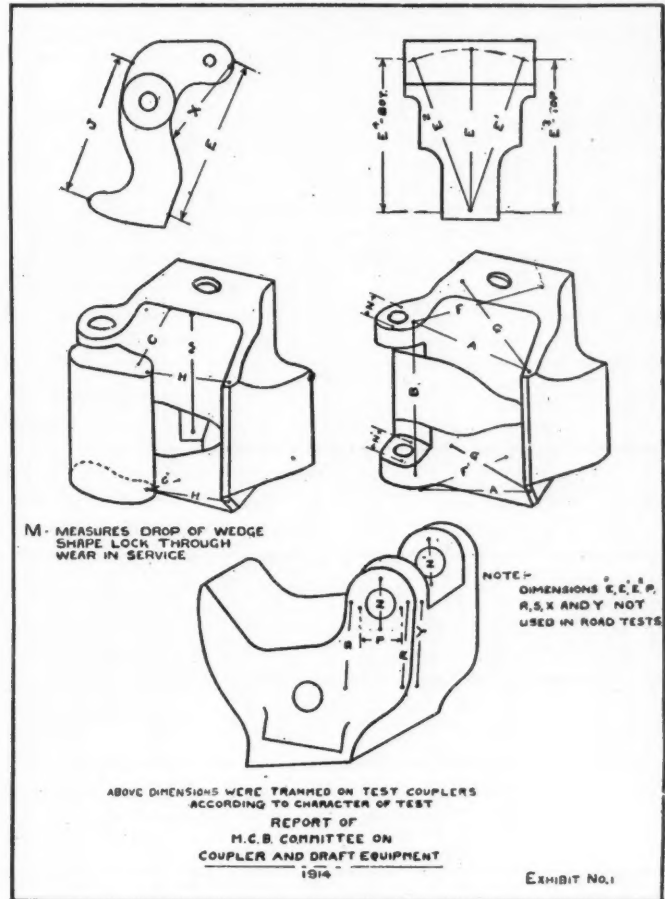


Fig. 1—Location of Points for Testing

Couplers	Weight Complete Pounds	AVERAGE TOP(C) AND BOTTOM(C)		Ultimate Load, Pounds	
		Permanent Set at "C" (Knuckle Opening) at 150,000 Lbs., Inches	Load at M.C.B. Limit (.625 in.) of Set at "C" or Load at Set Nearest to Limit		
		Total	Pounds	Total	Per Pound of Weight
Average present type	292	.305	210 571	261 725	896
COMMITTEE SPECIFICATION					
Tc.....	480	.019	500 000	545 000	1 135
Tc.....	468	.037	471 690	531 440	1 136
Tb.....	517	.192	526 720	620 000	1 199
Tb.....	506	.026	531 200	531 200	1 050
Uc.....	448	.092	345 580	388 600	867
Uc.....	449	.115	300 920	355 720	792
Vb.....	473	.032	300 000	345 940	731
Vb.....	460	.096	293 000	319 480	695
Wb.....	480	.034	389 380	451 020	940
Wc.....	483	.076	336 410	423 320	876
Xc.....	416	.058	450 000	465 130	1 118
Xd.....	425	.077	400 000	449 800	1 058
Ye.....	467	.047	450 000	495 220	1 060
Ye.....	473	.081	400 000	460 130	973
Yf.....	448	.....	446 000	531 660	1 187
Yf.....	453	.049	400 000	437 440	966
Average	465	.0644	408 806	459 444	988
Increase.....			94.1%	75.5%	10.3%
Decrease.....			78.9%		

NOTE.—All the present type couplers were 5 by 7 in. shank except Ua, which was 5 by 5 in., and all the committee specification couplers were 6 by 8 in. shank and made from wooden patterns, which increased the weight over regular foundry practice.

The second table on page 1361 is a comparison of results of pulling tests of these specification couplers with results of similar tests of present couplers in general use, as reported last year. (Page 129, 1913 Proceedings.) These comparisons show a decided decrease in permanent set and increase in strength of the specification couplers.

and the experimental design on freight locomotive tenders on the Pennsylvania Railroad in the same manner as described last year.

The following are some of the results showing the set found in measurements C, H, and E, for the period of time indicated, for both the experimental type and present type couplers:

TB TENDER COUPLER (EXPERIMENTAL).

Installed July, 1912.

TEST BAR.	DATE.	SET—PLUS OR MINUS FROM ORIGINAL DIMENSION.						GAGE.	
		C	C ¹	H	H ¹	E	E ¹	Top	Bottom.
No. 648.....	4-14-14	+.24	+.11	+.17	+.19	-.10	-.05	4 $\frac{11}{16}$	4 $\frac{22}{32}$
No. 650.....	4-17-14	+.29	+.17	+.26	+.18	-.08	-.04	4 $\frac{11}{16}$	4 $\frac{22}{32}$
No. 651.....	4-23-14	+.30	+.08	+.47	+.26	-.05	-.04	5 $\frac{1}{32}$	4 $\frac{22}{32}$
No. 653.....	4-27-14	+.22	+.12	+.11	+.17	-.08	-.03	4 $\frac{22}{32}$	4 $\frac{22}{32}$
No. 686.....	4-1-14	+.27	+.16	+.37	+.25	-.06	-.04	5 $\frac{1}{32}$	5
No. 689.....	4-15-14	+.28	+.18	+.20	+.21	-.09	-.04	5	5 $\frac{1}{32}$
Average.....		+.267	+.137	+.263	+.21	-.077	-.04	4 $\frac{22}{32}$	4 $\frac{22}{32}$
		+.202		+.237		-.058		4.974	

YD TENDER COUPLER (EXPERIMENTAL).

Installed August, 1913.

TEST BAR.	DATE.	SET—PLUS OR MINUS FROM ORIGINAL DIMENSION.						GAGE.	
		C	C ¹	H	H ¹	E ³	E ⁴	Top.	Bottom.
No. 636 $\frac{1}{2}$	2-1-13	-.08	-.05	+.01	+.02				
No. 638.....	1-6-13	+.03		+.15	+.06	-.02	-.01		
No. 639.....	4-1-14	-.10	-.01	+.03	+.06	-.11	-.04	4 $\frac{11}{16}$	4 $\frac{1}{2}$
No. 646.....	2-14-13	-.13	-.21	+.04	+.07	-.05	-.01		
No. 641.....	11-1-12	-.13	-.04	+.18		-.11	-.10		

YDA TENDER COUPLER (EXPERIMENTAL)

Installed June, 1913.

TEST BAR.	DATE.	SET—PLUS OR MINUS FROM ORIGINAL DIMENSION.						GAGE.	
		C	C ¹	H	H ¹	E ³	E ⁴	Top.	Bottom.
No. 703.....	4-17-14	+.11	+.06	+.20	+.24	-.04	-.03	4 $\frac{22}{32}$	4 $\frac{7}{8}$
No. 704.....	4-15-14	+.08	+.17	+.24	+.17	-.06	-.05	4 $\frac{11}{16}$	4 $\frac{11}{16}$
No. 705.....	4-14-14	+.04	+.09	+.17	+.13	-.05	-.01	4 $\frac{22}{32}$	4 $\frac{22}{32}$
Average.....		+.077	+.107	+.203	+.180	-.050	-.037	4 $\frac{22}{32}$	4 $\frac{22}{32}$
		+.002		+.191		-.043		4 $\frac{22}{32}$	

YDB TENDER COUPLER (EXPERIMENTAL)

Installed June, 1913.

TEST BAR.	DATE.	SET—PLUS OR MINUS FROM ORIGINAL DIMENSION.							GAGE.	
		C	C ¹	H	H ¹	E ³	E ⁴	M	Top.	Bottom.
No. 714.....	4-17-14	-.26	-.14	-.04	-.16	-.06	-.03	+1.16	4 $\frac{1}{2}$	4 $\frac{11}{16}$
No. 715.....	4-27-14	-.14	-.11	+.03	-.06	-.07	-.04	+.63	4 $\frac{11}{16}$	4 $\frac{11}{16}$
No. 716.....	4-17-14	-.14	-.16	-.02	-.07	-.07	-.02	+.54	4 $\frac{11}{16}$	4 $\frac{11}{16}$
Average.....		-.18	-.137	+.007	-.097	-.057	-.03	+.78	4 $\frac{11}{16}$	4 $\frac{22}{32}$
		-.158		-.045		-.048			4 $\frac{22}{32}$	

ROAD TESTS.

The road-service tests of couplers, reported on last year, were continued and are herein given with results up to date of writing the report. As in all tests, each coupler was given a letter designation by the committee to represent the name or type of the coupler tested, as well as the manufacturer. Couplers Ta, Ua, Wa, Xa, Ya and Yc represent couplers of the latest types in general service, such as Pitt, Sharon, Major, Simplex, Latrobe and Gould "Z," irrespectively, and couplers Tb, Xe, Yb, Yd, Yda and Ydb represent couplers of increased weight and strength in the development stage, termed "Experimental," a number of each of which were placed in service experimentally.

These road-service tests were conducted with couplers of present type on freight cars and with couplers of both present

CONFERENCES WITH MANUFACTURERS

In reporting upon and exhibiting to the Association last year the various designs of couplers, which were submitted to the committee by the respective coupler manufacturers as embodying the specifications on design jointly agreed upon by both, the committee stated that the coupler manufacturers had designed the working parts of the couplers thus submitted according to their ideas to meet these specifications, and that it was essential to select from these couplers several designs to be tried out in services during the ensuing year to definitely determine the best contour line, efficiency of operation and strength of the various parts, with a view of harmonizing the designs thus chosen and eliminating any details that may prove unsatisfactory to the end of establishing the standard coupler.

Each coupler submitted was taken up and each minute detail, both of design and operation, was considered and thoroughly discussed, and by carefully weighing all the points at issue it was decided to try out two couplers, and the following were selected to enter the elimination trial in service:

American Steel Foundries No. 3 modified Alliance coupler (Fig 2).

The National Malleable Castings Co. Bazeley coupler (Fig. 3).

These couplers have straight locks and were selected for the general trial, but the committee did not feel like giving up the advantages dormant in the wedge-lock principle, which is applicable to most coupler designs, nor did the committee desire that a wedge-lock coupler be tried out in service in general, hence it was decided to make and confine further experiments with this wedge principle under the direct supervision of the committee. The coupler selected for these trials was:

The National Malleable Castings Co. Bazeley coupler with wedge lock.

HEIGHT OF COUPLER HEAD ABOVE CENTER LINE

A meeting of representatives of the coupler committee, American Steel Foundries and the National Malleable Castings Company, was held at Altoona, Pa., August 21, 1913, for the purpose of determining upon the height of head above center line of the standard freight-car coupler, with particular regard for use of same coupler head on locomotive tenders and that it may couple to passenger cars and not have interference between tender coupler and passenger-car buffer, or vice versa, when the heights of coupler and bottom of buffer vary to opposite extremes, as in service a condition is sometimes present of having one coupler $3\frac{1}{2}$ in. and the mating coupler $3\frac{3}{4}$ in. above top of rail, therefore, provision for a 3-in. variation is necessary.

FREIGHT CAR COUPLERS (PRESENT TYPE)

COUPLERS.	TEST BAR No	DATE.	TIME IN SERVICE.	SET-PLU'S OR MINUS-INCHES FROM ORIGINAL DIMENSION.						GAGE.	
				C	C ¹	H	H ¹	E ²	E ¹	Top.	Bottom.
Ta.....	620	4-16-14.....	20 months, 20 days...	+ .34	+ .29	+ .06	+ .17	+ .05	+ .06	4 $\frac{1}{2}$	4 $\frac{7}{8}$
Ta.....	621	4-16-14.....	20 months, 20 days...	+ .25	+ .16	+ .08	+ .17	+ .05	+ .07	4 $\frac{1}{2}$	4 $\frac{1}{2}$
Ua.....	600	3-31-14.....	20 months, 4 days...	+ .26	+ .31	+ .17	+ .27	+ .13	+ .08	4 $\frac{1}{2}$	4 $\frac{1}{2}$
Ua.....	601	2- 4-14.....	18 months, 8 days...	+ .18	+ .21	+ .13	+ .28	+ .03	+ .05	5	5 $\frac{1}{2}$
Wa.....	604	4- 6-14.....	20 months, 10 days...	+ .24	+ .44	+ .24	+ .33	-.04	+ .26	5 $\frac{1}{2}$	5 $\frac{1}{2}$
Wa.....	605	4- 6-14.....	20 months, 10 days...	+ .18	+ .31	+ .17	+ .24	-.07	+ .16	4 $\frac{7}{8}$	4 $\frac{7}{8}$
Xa.....	608	4-16-14.....	20 months, 20 days...	+ .33	+ .22	+ .15	+ .26	-.05	-.06	5 $\frac{1}{2}$	5 $\frac{1}{2}$
Xa.....	609	4-16-14.....	20 months, 20 days...	+ .17	+ .18	+ .13	+ .17	+ .03	+ .04	4 $\frac{1}{2}$	5 $\frac{1}{2}$
Ya.....	612	4- 6-14.....	20 months, 10 days...	+ .28	+ .30	+ .17	+ .23	+ .13	+ .12	4 $\frac{1}{2}$	5
Ya.....	613	4- 6-14.....	17 months, 5 days...	+ .21	+ .24	+ .17	+ .32	+ .06	+ .07	4 $\frac{1}{2}$	4 $\frac{1}{2}$
Yc.....	616	4-16-14.....	20 months, 20 days...	+ .14	+ .17	+ .04	+ .13	+ .01	+ .05	4 $\frac{1}{2}$	4 $\frac{1}{2}$
Yc.....	617	4-16-14.....	20 months, 20 days...	+ .26	+ .26	+ .07	+ .23	-.03	+ .08	4 $\frac{1}{2}$	4 $\frac{7}{8}$
Average, all bars.....				+ .237	+ .257	+ .133	+ .233			4 $\frac{1}{2}$	4 $\frac{1}{2}$ +
				+ .247		+ .183				4 $\frac{1}{2}$	

The ordinary distance from center line of passenger-car coupler to bottom of buffer is about $9\frac{1}{2}$ in., subtracting the 3-in. difference in coupler height leaves $6\frac{1}{2}$ in. for the height of coupler head above center line of its shank.

It would be well to keep the head as low as possible throughout its entire length, but, due to amount of lift required for the locking pin, this is often not possible, and where such is the case the head should be kept as low as possible back to the locking pin, or a safe distance, and then raised, the minimum height to accommodate the lift of the locking pin.

With a locomotive not having a buffer coupled to a passenger car having a buffer, the passenger-car buffer at rest will extend from $2\frac{1}{2}$ in. to $3\frac{1}{2}$ in. (varying with standard platforms) back of the coupling or pulling face of the locomotive coupler, and with the draft gear of the car completely compressed ($2\frac{1}{2}$ in.), the buffer on the passenger car will then extend 5 in. to 6 in. back of the coupling or pulling face of the locomotive coupler, plus any slack in the contour lines, therefore, the minimum height of coupler head should extend about 6 in. back from the coupling point.

Since it is desirable to use the same coupler head on locomotives and freight cars, it is seen that the height of head for freight cars is limited by and should be designed to accommodate a condition of a locomotive coupling to a passenger car, in order to avoid the necessity of off-setting the coupler head below center line of coupler shank for use on locomotives, which would be very undesirable, since locomotive couplers are subjected to the most severe strains.

The data collected and the entire situation was gone over and the following unsettled points decided upon:

1. The hub of the knuckle shall be 8 in. high.
2. The height of the coupler head above center line of coupler shank shall not exceed:

A—Locomotive Coupler: $6\frac{3}{4}$ in. for a distance of 6 in. back of coupling line.

B—Freight Car Coupler: $7\frac{1}{4}$ in. for a distance of 6 in. back of coupling line, but using same head as for locomotive coupler, the allowable increase ($\frac{1}{2}$ in.) in height for the freight car coupler is to provide for reinforcement of junction of top coupler ear to coupler head.

3. The head shall not be offset below center line of coupler shank.

4. The design of the coupler shank shall be the same in both experimental couplers; to be decided soon at a conference between the two coupler manufacturers and your chairman.

5. The weight of the complete couplers, 6 by 8 in. shank, $9\frac{1}{8}$ in. butt, shall not exceed 400 lb.

COUPLER SHANK, BUTT END AND KEY SLOT

Another meeting was held at Alliance, Ohio, October 13, 1913, with the view of discussing the design of coupler shank, coupler butt and key slot, with the following results:

Coupler Shank, 6 by 8 in.: The design of coupler shank as shown on American Steel Foundries drawing 03401, dated October 8, 1913, was accepted for the present. This includes thickness of the walls, the juncture of the shank to head and liner block. The National Malleable Castings Company's drawings, 11974, dated April 10, 1913; 11977, dated April 9, 1913, and 11971, dated April 8, 1913, were accepted for the present. These include the thickness of the walls, the juncture of the shank to the head and liner block.

Coupler Butt: The coupler butt to be $9\frac{1}{8}$ in., with $1\frac{1}{4}$ in. vertical face for yoke gib. The coupler rivet holes and general design of butt the same as present M. C. B. Standard.

Key Slot: The key slot was discussed at length and it was decided that a uniform standard should be adopted.

Coupler Shank, 5 by 7 in.: The shank to be the same as

present M. C. B. Standard, with the exception of the juncture of the shank to the head, which is to be in accordance with drawings submitted for the representative couplers.

Coupler Butt: Same as present M. C. B. Standard.

Key Slot: Same as M. C. B. Standard.

[A further meeting was held at Altoona, November 21, 1913, and a definite system of marking the coupler parts was adopted.—Ed.]

KNUCKLE CONTOURS

The difference of the knuckle contours of the types "A" and "B" knuckles of No. 5 contour where it diverges from the contour of the coupler body having been brought to the attention of the two manufacturers, and the American Steel Foundries having objected to the "B" knuckle of No. 5 contour, another meeting was called for the purpose of settling this question and to inaugurate a series of tests of the two Experimental Standard M. C. B. Couplers on the service-testing machine at the Alliance works of the American Steel Foundries.

It was agreed that the "A" knuckle of No. 5 contour is slightly more desirable for coupling operations and the "B" knuckle of No. 5 contour is somewhat better for uncoupling operations, but since the effect of these differences in the steel specimens are slight, the manufacturers shall continue to furnish the knuckle-tail contours as at present, with the final shape to be determined by the service trials.

[The contours of the present M. C. B. (1904) standard knuckle, the American Steel Foundries and the National Malleable Castings Company are shown in Fig. 4.—Ed.]

TESTS OF "A" AND "B" COUPLERS ON SERVICE-TESTING MACHINE

These tests were inaugurated on a machine at the Alliance works of the American Steel Foundries at the joint conference held there on January 7, 1914. Two type "A" couplers of No. 5 contour were tested together and two type "B" coup-

lers of No. 5 contour were tested together. Each of these tests were run through 30,000 cycles, each of which consisted of the following operations for the lower or operating coupler: Coupling, lock-setting, uncoupling by withdrawing from other couplers, knuckle pushed to closed position by a lever, then knuckle thrown completely open by uncoupling rod. Assuming a freight-car coupler in service will average daily (365 days to a year) the operations here listed as one cycle, these tests each represent 82 years' wear, disregarding effects of operating parts due to strains received in regular service.

Each operating coupler tested was, beforehand, laid off, measured and notes taken on various parts, dimensions and features that were liable to be affected during the tests and very moderately oiled only at this time. The tests were conducted under the direct supervision of the committee, whose representative, together with those of the Americap Steel Foundries and The National Malleable Castings Company, was present during the

PATENTS INVOLVED IN THE EXPERIMENTAL STANDARD M. C. B. COUPLERS

There are, unavoidably, patents involved in both types "A" and "B" Experimental Standard M. C. B. Couplers, and they were, on April 6, 1914, submitted to ascertain the scope and validity of same. When this report is received the matter will be referred to the executive committee.

PROGRAM OF TESTS FOR ENSUING YEAR

After the close of the convention the following tests of the A and B couplers will be conducted under the direct supervision of your committee: Dynamic and static; angling and coupling; jiggling and lock-creeping; and service machine.

Since it is principally from the results of trials in general service that either type "A" or type "B" coupler, or either with slight changes, will be adopted by the Association as a standard,

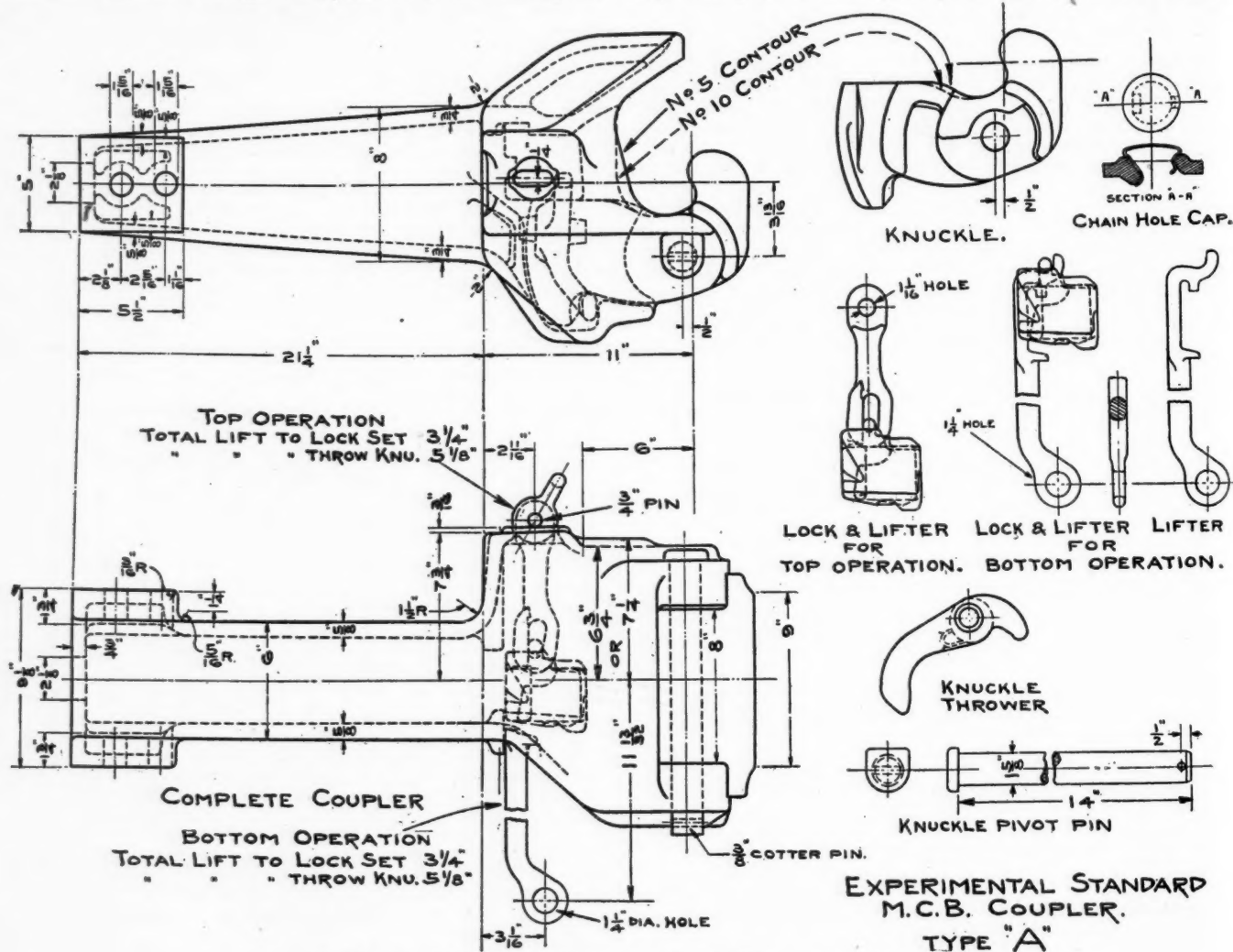


Fig. 2—No. 3 Modified Alliance Coupler for Elimination Trials

entire time. The machine was out of doors under a shed and severe cold weather obtained during the trial until completion on March 5, 1914.

The results of the tests were very satisfactory and favorable to both couplers. Some minor changes were shown to be desirable and these have been made. This was a very severe test and the committee is firm in the belief that not any of the present standard couplers in general use today would meet it.

The committee believes it desirable for the Association to have a uniform stenciling for freight cars equipped with the Experimental Standard M. C. B. Couplers so that they can be maintained and readily identified by all car inspectors and repairmen, thereby schooling the latter and others in line with the adoption of the standard M. C. B. coupler, as well as assist your committee during the trial period. The stenciling should designate between the types (A or B) and between the contours (No. 5 or No. 10), and we would recommend the adoption of stenciling as follows, which is the same as the marking cast on the couplers:

- "A 5" E. S.-M. C. B. Coupler.
- "A 10" E. S.-M. C. B. Coupler.
- "B 5" E. S.-M. C. B. Coupler.
- "B 10" E. S.-M. C. B. Coupler.

it devolves upon the members to enter into the spirit of the undertaking and each do his share toward furthering the project, and this share consists principally in ordering some couplers, placing them in service and noting the results.

It is very essential that, after the committee has designed two couplers for trial from which the final standard coupler will be adopted, the railroads in general should place them in service not only to enable themselves individually to properly judge in the end between the merits of the couplers, contours, etc., but also to aid and furnish the committee a field in which to investigate, test and draw conclusions.

EXHIBIT OF EXPERIMENTAL STANDARD M. C. B. COUPLERS

Immediately back of convention hall, at the north side of the pier (same location as last year), the committee has on exhibition, for the benefit of the members of the M. C. B. and M. M. Associations, types "A" and "B" Experimental Standard M. C. B. couplers, embodying both sizes of shank, 5 by 7 in. and 6 by 8 in., both contour lines No. 5 and No. 10, both top and bottom operations and both heights of coupler head, 6 3/4 in. and 7 1/4 in. It should be remembered that these couplers were so designed that the same knuckle at least could be used in a

passenger-car coupler, thus giving a universal standard knuckle for all equipment.

The report is signed by:—R. L. Kleine, (Penn.), chairman; G. W. Wildin, (N. Y., N. H. & H.); F. W. Brazier, (N. Y. C.

Mr. Fuller says. On the other hand there is one thing I am interested in, and I call your attention to the fact that this committee has not been able to do anything on the draft gear proposition. I would like to suggest to the incoming Execu-

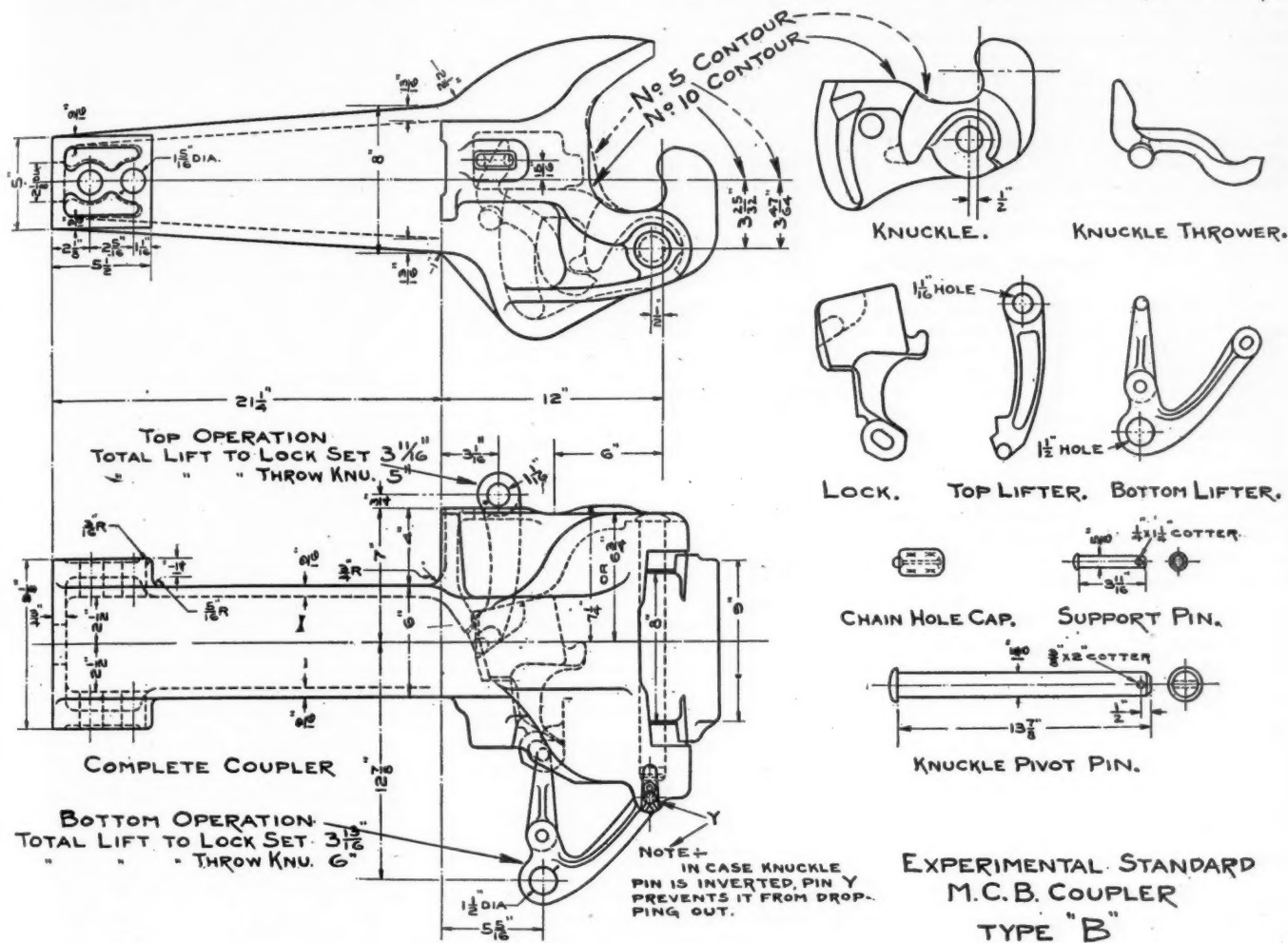


Fig. 3—Bazeley Coupler for Elimination Trials

& H. R.); J. F. DeVoy, (C. M. & St. P.); F. H. Stark, (Pitts. Coal Co.); B. Julien (U. P.), and J. W. Small, (S. A. L.).

DISCUSSION

C. E. Fuller (U. P.): The Association is greatly indebted to the committee and to the manufacturers for the work they

have done, and I feel that this Association should order these couplers without any further delay and try them out. The subject is of too much importance to be lost sight of.

F. F. Gaines (C. of Ga.): I am very glad to concur in what

Mr. Fuller says. On the other hand there is one thing I am interested in, and I call your attention to the fact that this committee has not been able to do anything on the draft gear proposition. I would like to suggest to the incoming Execu-

The President: I would like to call the especial attention of the members to the exhibits of the experimental couplers near the entrance to the hall on the pier, and also to the locomotives on Georgia avenue. The opportunity to see the development of this standard M. C. B. coupler in the exhibit is much better than you can have anywhere else.

Robert Quayle (C. & N. W.): We are peculiarly fortunate in having a committee that has done such good work, and has devoted so much time and intelligence to it. The document which it has submitted is more of a textbook than a report, and I am sure our members will all be glad, at the earliest possible moment, and for a good many moments to delve into and see what has been done.

F. W. Brazier (N. Y. C.): This is the place to go on record to say to our higher officials that we cannot buy good material at a cheap price. We must pay for it. We must have some evidence to show our higher officials that we cannot get good couplers cheap. We have been criticised somewhat, because we have asked for larger couplers, but we must have them. We are getting bigger locomotives and larger cars, and we must have something with which to pull these heavier weights safely, and I know the only way by which we can get these higher grade couplers from our officials is to demand of our higher officials permission to put on our requisitions some of these couplers for testing. They are going to cost more money, as a good thing costs more than a poor one.

R. L. Kleine: The committee calls attention in circular No. 16 as to just how the reports on the experimental coupler should be made by the railroads testing them out and what information should be given; in other words, Exhibit No. 1 shows a sketch as to how the coupler should be laid off, and it will

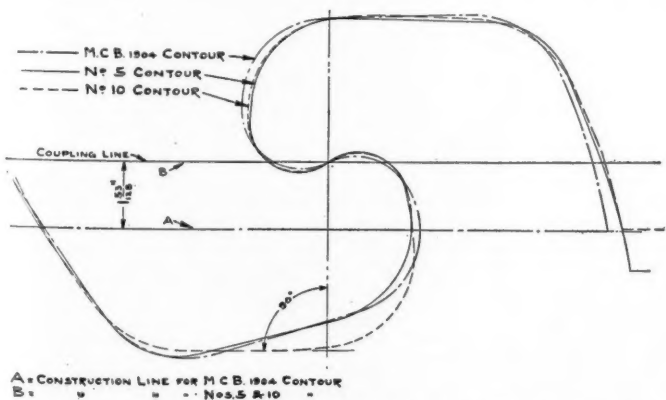


Fig. 4—Comparison of Contours of M. C. B. 1904, American Steel Foundries No. 5, and National Malleable Castings Co. No. 10

be necessary for each road to keep a log of a few of these couplers, and while the tests are going on, the committee would like to visit these different roads, at least some of them, and see what railroads are having trouble with the couplers if any trouble should develop. We, of course, expect some trouble will develop. If the tests are conducted along the lines suggested in circular No. 16, and a coupler is laid off in accordance with Exhibit No. 1, and a record kept, that will give both the railroad and the committee all the information that they desire.

F. H. Clark (B. & O.): I move that the report of the committee be accepted and the committee continued. We are very much interested in the committee's report. It has made greater progress for the standardization of couplers. I think the committee is entitled to a great deal of credit for having brought the thing to its present condition.

The motion was seconded and carried.

SAFETY APPLIANCES

M. K. Barnum, chairman of the committee, read the report, as follows: The standing committee on safety appliances sent out its circular asking for certain information and has received some replies, but they were hardly complete enough to justify a formal report. However, the conclusion which the committee arrived at partly as the result of the replies which were received to the circular, and partly from the failures to reply, was that there is need of more activity on the part of most of the railroads in pushing the work of applying safety appliances. It has also developed in the meetings of this committee and those of the executive committee, that there is not a sufficiently clear understanding on the part of the employees of many of the roads as to just how the safety appliances should be put on to comply with the law.

The only way in which that lack of understanding can be corrected is by studying the law and by inaugurating a systematic campaign of education with the men who have to do with safety appliances.

The chief point which the committee wishes to make in its report is that an organized effort be made to instruct the car men, including the foremen, inspectors and all who have anything to do with safety appliances, in the proper application of these appliances so that they will have very clearly in mind just what the law requires and when a car is once equipped with safety appliances it will be in conformity with the law and will not go out of the shop with mistakes in application which constitute violations of the law.

DISCUSSION.

F. F. Gaines (C. of Ga.): I very recently found that we were letting one class of cars go out of the shop with hand holds two inches shorter than the law required, and no one discovered that, until we had turned out quite a large number of the cars, when someone measured the thing up and found there was an error. That is one illustration of a large number of things in the way of mistakes which may occur unless this matter is given very close attention.

T. H. Goodnow (C. & N. W.): The trouble which is going to come when the law becomes effective in 1916 is the matter of differences of opinion between the different railroads in the interchange of cars, and I would like to suggest to the committee that it take into consideration whether or not it would be a good idea to district off the country and put each district in charge of a man who is competent to instruct not only the men in the shops, but the heads of departments, in standardizing the safety appliances on the cars.

J. J. Hennessey (C. M. & St. P.): There is a difference of opinion between the government inspectors as well as between the railroads as to the manner of equipping the cars with safety devices. I believe it would be advisable for this Association to get out a set of illustrations that are plainer than anything that has been gotten out at the present time and send it out to every railroad in the country, covering as many cars as possible, without too many details. They are very confusing to the average man who is trying to study out and meet all of the requirements.

F. W. Brazier (N. Y. C.): We have found it very important on our own system to educate our men. We cannot take seven or eight shops and get seven or eight foremen to read blueprints for and all the repairmen, especially on piecework. On the Central we are getting up a book, as Mr. Hennessey suggests, and we are going to have illustrations and the law in it. In addition to that we have five men who are going around all over the system trying to educate our own men. We must do our work right. Instead of having less inspection, which we think we should have in our economy times, we need more and better inspection.

S. G. Thompson (P. & R.): I would like to call attention to

the fact that we should have the Government inspectors right, too. It is not all on the railroads. The point was recently brought up as to what ought to be the clearance on a caboose car grab-handle, whether the hold at the middle of the handle should dip down and clear, so that the hand should go around or not. One inspector will say one thing and another will say another. We have applied safety appliances right along, but we cannot have them right in 1916 if we come along with another interpretation, so I think the interpretation of this law ought to be made very clear.

C. E. Fuller (U. P.): When the law was put out, we took one car of every class on our railroad, and we equipped it as we understood the requirements. We took a half dozen good bright car men as a committee, to study this question, and after these cars were equipped, they each one made an inspection and a report as to the correctness of the applications. After that was done, the whole committee, with our engineering department, went over the proposition and determined what the intention of the law was. We made some mistakes, but I do not think there is anything about the requirements of the law that is so intricate or so deep that it cannot be understood.

Robert Quayle (Q. & N. W.): We recently had a sample car built and brought to the shops for inspection before the other cars were to be set up, and during one day we had seven railroad men look over that car. Every man first said that the safety appliance did not comply with the law. After a little discussion of the matter four of them agreed that it did, and the other three still stick to it that it does not. Now that is evidence to me that we are going to have more trouble in the interchange of cars than we are going to have with the Government officials, and if we cannot agree among ourselves, how can we expect the inspectors to agree with us? It seems to me that the executive committee of this association ought to, at least, begin to consider the matter in such a way that they can give to us such information as will set us right before July 1, 1916, and not allow us to spend all the company's money and then find we have spent it in a wrong manner, and the results that we obtain are not in accord with your views, and some other gentlemen's views, particularly the interstate commerce commission.

D. R. MacBain (L. S. & M. S.): We have had some little discussion with regard to the application of safety appliances. We have equipped some cars that were not in exact accordance with the law, but we have kept in touch with the interstate commerce inspectors, and have never had a case yet which we have not been able to settle with them in a very satisfactory way.

The wrong repair proposition, you will find, upon investigation, is the biggest part of the trouble, and I am not looking for any serious consequences from that. I realize that the Government has a full comprehension of the enormity of this whole task, and I believe as long as we are all displaying a disposition to comply with the law and get the safety appliance attached, we will be met with a spirit of fairness and given time to adjust any of the difficulties which may arise.

E. W. Pratt: As I remember it, at an executive committee meeting in New York last fall, this committee was to look up the matter for the association, of printing a pamphlet showing the application of safety appliances.

President Barnum: There was such a resolution, and the committee has been working on that proposition. It has obtained several simple forms to consider in getting up such a book, and I think the matter is in such shape that an M. C. B. book of safety appliances can be sent out in the near future.

(A motion was made and carried, that the report of the committee be accepted.)

LOADING RULES

The committee called attention to a number of corrections which were necessary in the rules, as printed last year, and then recommended the following changes:

The last sentence of Rule 15-E, as appearing in the 1913 printed code, was presented in the committee's supplementary report, but through error was not included in the letter ballot. As the provision of the clause does not seem to be exactly what is desirable, the committee recommends that it be withdrawn pending further investigation.

RECOMMENDED CHANGES

Page 3, heading.—Omit the words "On open cars."

Reference to height of dividing line between high and low side gondola cars should be shown as 36 in. instead of 30 in. throughout the code when reprinted.

Rule 8.—Add a new sentence as follows: "The lading must be so placed on the car that there will not be more weight on one side of the car than on the other."

Rule 12, seventh line.—Change "Rule 32, Fig. 4," to read "Rules 32, 33 and 34, Figs. 4 and 4-a."

Rule 15.—Add the following to the end of the first paragraph: "Wooden flat cars having but two truss rods must not be used for twin or triple loads."

Rule 15-A.—Omit reference to flat cars with two truss rods. Add to the end of rule "On steel flat and steel drop-end gondola cars constructed with fish-belly girders, the weight of lading must not exceed three-quarters ($\frac{3}{4}$) of the capacity of car."

Rule 15-B.—Omit reference to flat cars with two truss rods.

Rule 22.—Insert "Or sliding-pieces" in first line after words "bearing-pieces." The height of sliding-pieces should be limited as well as bearing-pieces.

Change last sentence in rule to read as follows:

"For structural material the bearing-pieces must be securely

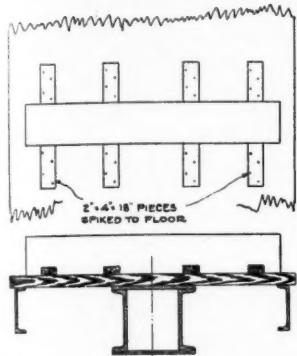


Fig. 1—Method of Blocking Bearing Piece for Lumber, Logs, Telegraph and Telephone Poles, Piling and Props

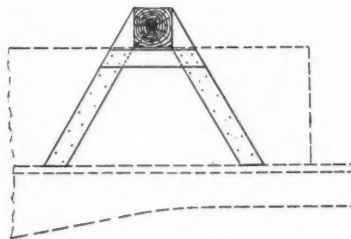


Fig. 2—Bracing for Bearing Pieces

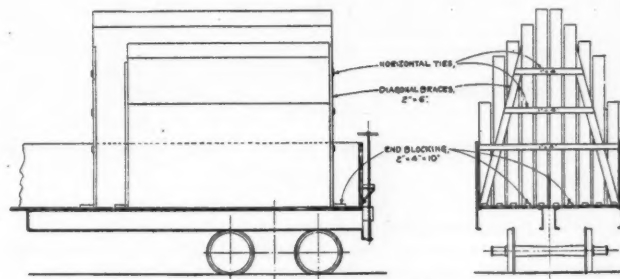


Fig. 3—Manner of Loading Plate Glass on Flat or Gondola Cars

fastened to the floor of car as per Rule 72. For lumber, logs, telegraph poles, piling and props, on open cars loaded as per Figs. 6, 8, 9, 10 and 11, the bearing-pieces must be securely held in place by cleats as per Fig. 11-A." (Fig. 1.)

Rule 23.—In first line change "and" to "or." The rule is intended to limit the location of sliding-pieces as well as bearing-pieces.

Rule 72.—Change the word "blocks" in second and fifth lines to "pieces."

Rule 78.—Change to read "Clamping pieces on top of load,"

extend 6 in. above top of lading to prevent lading shifting side-wise.

Rule 82, first paragraph, third line.—Change words "bearing-piece" to "sliding-piece." Sliding-pieces are intended.

Fig. 34.—Change to read: "Must not exceed 65 ft." Also add to first line of note under figure "box girders, columns, one-half roof trusses and similar material."

Figs. 43-A and 43-B.—Sliding-pieces should not be shown outside of bolsters toward end of car, as this location is prohibited by Rule 23.

Rule 91.—Change to read: "When gondola cars are used for twin loads a clearance of at least eighteen (18) in. on each side between the load and car sides and end-gate stops at narrowest

point; and when used for continuous triple loads at least thirty-nine (39) in. must be provided for curving. See Fig. 12; also change Fig. 12 to conform to new rule.

Also add a note to rule, reading as follows:

"NOTE.—As the specified clearances are to take care of road rather than terminal conditions, precautions should be exercised at terminals where short curves exist to prevent damage to sides of cars."

Rule 93, page 85.—Change "22 in." in fourth line to "18 in." To making sliding-irons conform to clearance limits.

Rule 98.—The last sentence should be changed to read as follows:

"Rolling freight must be loaded longitudinally with car and must be chocked to prevent side motion. Substantial blocking



A. Kearney
Chairman, Committee on Rules for Loading Materials

instead of "on top of sides of cars," as the clamping-pieces are always placed on the load and not on car sides.

Figs. 32, 33, 44 and 45.—Change the fish-tail brace for bearing-pieces to angular braces, as per Fig. 2.

Rule 81-D.—Fifth line, page 71, should be changed to read: "Three or more vertical straight-grain hardwood posts;" also there should be shown on cut 33-B, 2 by 6-in. hardwood timbers securely bolted between upright posts and side of car and

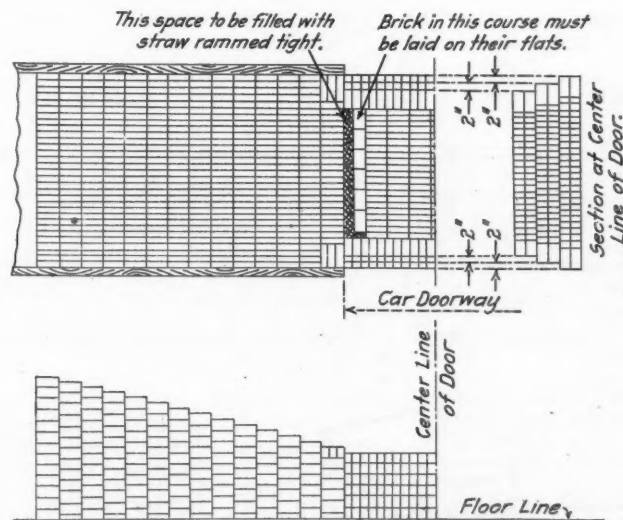


Fig. 4—Manner of Loading Brick 15 in. and Less in Length, without Door Protection

should be placed across end of car at end of load to prevent end of car being cut by material shifting endwise."

Rule 117-C.—Change blocking on Fig. 61-A from "6 in. by 6 in." to "2 in. by 2 in." [This rule was also changed to take care of, in a general way, the manner of loading the various designs of mining cars and similar vehicles.—Ed.]

Fig. 64-D.—Change angular chocking from "8 in. by 10 in. by 24 in." to "not less than 6 in. by 8 in. by 16 in."

The following rule should be added to the code to cover shipments of derrick cars and similar machinery having swinging booms:

"Rule 121-C.—Derrick cars, and similar machinery when

shipped on their own wheels or otherwise, the swinging booms must be substantially secured to prevent swinging in transit."

Rule 122.—Change heading to read: "Rules Governing Loading of Plate Glass on Flat or Gondola Cars."

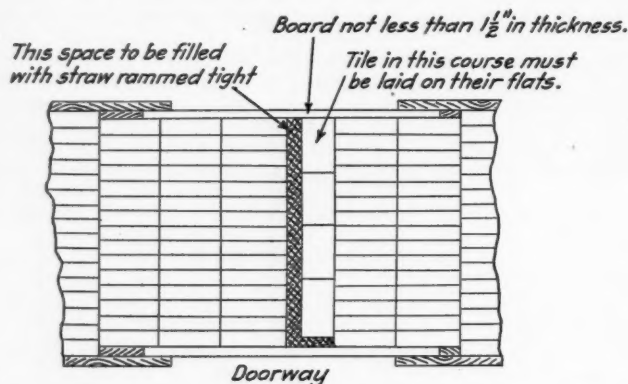


Fig. 5—Manner of Loading Brick When Door Protection is Required

Add a new paragraph to Rule 122, as follows:

"When a number of boxes containing plate glass are loaded on gondola or flat cars they should be loaded vertically, one tightly against the other with one end of all boxes flush, and blocked

be used to brace each set of boxes of the same length, or each box if of different lengths. See Fig. 64-F." (Fig. 3.)

Rule 123-A.—Change first line to read: "Iron ore, limestone and similar heavy materials, transported."

Page 135. Note under heading.—Change to read: "The agent or inspector at the loading point must see that the rules for loading material in closed cars are strictly enforced. Where opportunity is provided, the lading should be inspected in transit."

Rule 124.—Add a sentence to the end of rule reading as follows: "The lading must be so placed in the car that there will not be more weight on one side of the car than on the other."

Add a new paragraph reading as follows: "When necessary to nail cleats or braces to lining of box cars having steel superstructure without exterior siding, the nails must not be driven entirely through the lining."

A new rule reading as follows should be added to the code:

Rule 124-A.—Brick 15 in. and less in length loaded crosswise at doorway do not require door protection if built up as per Fig. 68-B. (Fig. 4.) Brick of any length loaded lengthwise at doorway must have door protection as per Fig. 68-C. (Fig. 5.)

It has been suggested that the following paragraph be added to this rule:

"Cost of applying door protection should be charged to the originating line, whether discovered at the time of interchange, or in transit."

The committee believes that the improper loading of closed cars should be taken care of by the originating line, but does not believe this comes within the scope of its work. The committee thinks the suggestion should be referred to the A. R. A.

Rule 131.—Should be changed to read as follows: "When

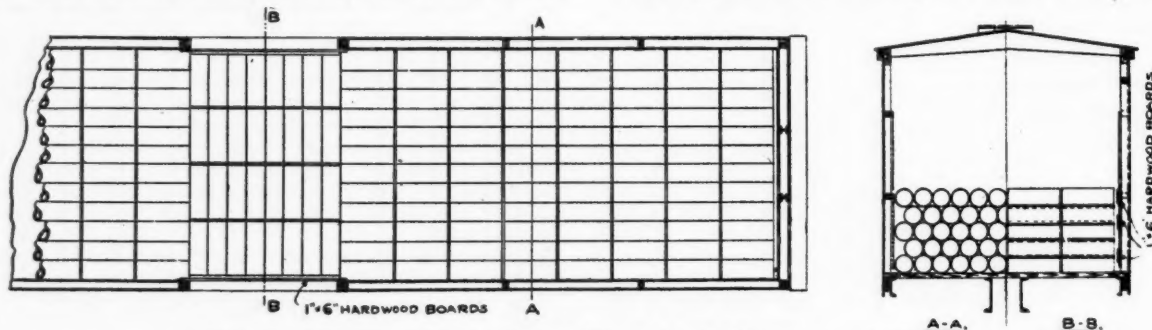


Fig. 6—Manner of Loading Drain Tile 8 in. in Diameter and Under

along the side of outside boxes and at both ends of each box on floor of car with not less than two (2) by four (4) in. blocks, ten (10) in. long. Diagonal braces of not less than two (2) by six (6) in., securely nailed at top of outside boxes, and braced and cleated at bottom to sides or floor of car to prevent

material loaded in stock cars is liable to work through the space between the slats, these spaces must be sufficiently sealed to prevent loss of material, or ends of material working through the spaces."

Rule 132.—In the first line, after the word "pipe," omit words

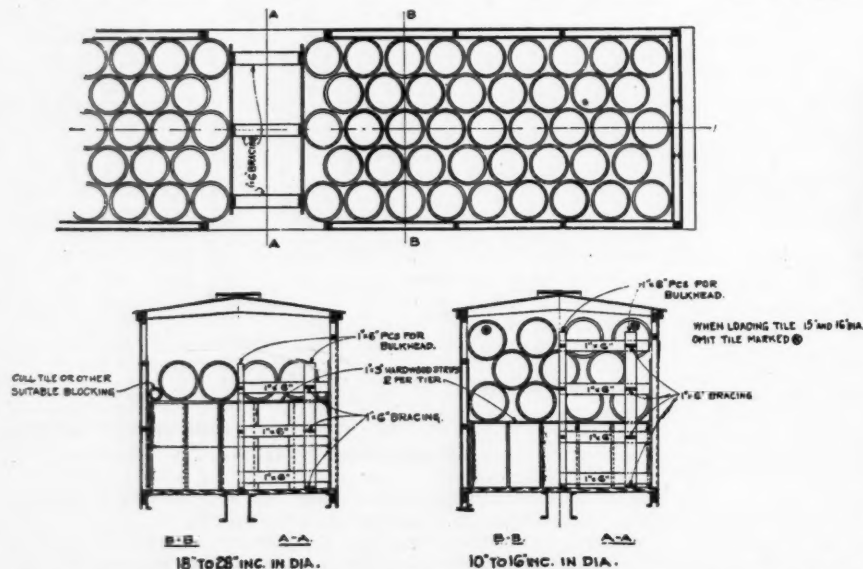


Fig. 7—Manner of Loading Drain Tile 10 in. to 28 in. in Diameter

shifting, should be used. Three horizontal ties not less than one (1) by four (4) in. should be securely nailed to the diagonal braces and ends of boxes where they are flush. At opposite end diagonal braces, not less than two (2) by six (6) in. should

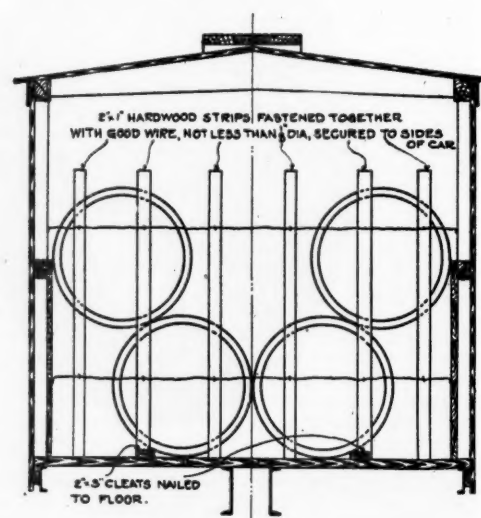


Fig. 8—Manner of Loading Drain Tile 30 in. in Diameter and Over

"drain tile." After word "separated," in second line, change to read "by not less than 1/2 by 2 in. hardwood strips."

A new rule covering the manner of loading drain tile, reading as follows, should be added to code:

"Rule 132-A.—Drain tile loaded in closed cars. Tile 8 in. in diameter and under should be loaded in tiers as per Fig. 73-A (Fig. 6) (see Rule 130 for required door protection). Tile 10 in. to 28 in., inclusive, in diameter, should be loaded as per Fig. 73-B (Fig. 7), and 30 in. in diameter and over should be loaded as per Fig. 73-C." (Fig. 8.)

Rule 133.—Fourth line, after the word, "aft," insert the following:

"Machinery resting on legs should be securely braced and propped at ends in addition to the floor strips to prevent breakage by shifting."

The report is signed by:—A. Kearney, (N. & W.), chairman; L. H. Turner, (P. & L. E.); J. M. Borrowdale, (I. C.); C. N. Swanson, (A. T. & S. F.); G. H. Gilman, (N. P.); A. B. Corinth, (A. C. L.), and R. L. Kleine, (Penn.).

In presenting this report Chairman Kearney said: "Your committee, since sending its report to the printer, has received some further suggestions for changes in the loading rules as follows, which we would like to submit for consideration along with the balance of this report: Rule 118, Paragraph under "End Protection" should be changed to read 3 in. x 4 in. strips in the 4th line, instead of 4 in. x 4 in.

Then we want to make another change in Rule 119c, which has been brought to our attention. Second paragraph, third line—change 4 in. x 4 in. strips to 3 in. x 4 in. and add "Stone not having a full one-inch vertical bearing its full width against the strip, an additional thickness to get the required bearing must be secured opposite such stone." The committee has received a number of propositions. It has not yet been able to consistently incorporate them in the rules for the reason that it believes that they require further study and probably some modifications.

DISCUSSION

Samuel Lynn (P. & L. E.): Through the efforts of our committee and the assistance of the manufacturers, we have got a set of rules that will handle most anything that is offered to us. I am sorry to have to say that instead of needing more rules, I believe that this association should adopt some rule to compel some shippers to live up to the rules that we already have. There are shippers who will not meet the requirements of these rules, and in our territory when you go and talk with them, and try to have them use the material which they should use, they will say: "There is the load. You take it, or your competitor will take it." What we need more than anything else is a rule by this association that will back up the work of the committee, and when one road is enforcing the rules, or trying to enforce them, it should not be penalized by losing the shipment. I believe this is the time and place for whatever action is necessary.

R. W. Bell (I. C.): I agree with the gentleman who has just spoken, that what we need is an enforcement of the present rules. There is one thing that is damaging our equipment more than anything else, and that is improper loading.

T. H. Goodnow (C. & N. W.): Mr. President, I should like to call attention to the recommendation of the committee on page 14: "Cost of applying door protection should be charged to the originating line whether discovered at the time of interchange, or in transit." The unfortunate part of the door protection rule as it stands at the present time is that it is too general. I am not prepared to suggest how it could be detailed more than it has been, but if there is any way of detailing how and when door protection should be provided, and when it should not be provided, I think it would clear up that question, and relieve a great deal of pressure and controversy, especially at the larger terminals, where the interchange is being handled under interchange bureaus.

D. R. MacBain: We have some very fast freight trains running over our system, and there is an epidemic of trouble from doors bulging out. We are trying to overcome this by enforcing the rules, but have a great deal of trouble. I was going to suggest the advisability of this association writing a letter to the American Railway Association and have that association exercise what authority it can toward having a more general observation of these rules. It is a very serious proposition, and one that ought to receive pretty stiff action.

(The report was referred to letter ballot.)

OVERHEAD INSPECTION OF BOX CARS.

Following the procedure indicated last June, the committee, when it was called upon by the American Railway Association sub-committee, explained to it in detail the code of rules for the overhead inspection of box cars, formulated at its suggestion. The report and code of rules were accepted by the American Railway Association and were proposed as a recommended practice. The card and code of instructions as finally accepted

by the American Railway Association as a recommended practice, are as follows:

INSPECTION AND CERTIFICATION OF BOX CARS BEFORE LOADING WITH FREIGHT SUBJECT TO DAMAGE.

(Recommended Practice subject to such changes as may be required to meet local or special conditions.)

NOTE.—The inspection does not cover cars for explosives or other dangerous articles provided for by the Regulations of the Bureau of Explosives.

Freight as described below must be loaded in certified cars which have received a special inspection in accordance with the following instructions. If cars pass the special inspection, this will be indicated by an inspection certificate which will be tacked on each side of the car below the car number.

CLASSIFICATION OF EQUIPMENT SUITABLE FOR THE FOLLOWING FREIGHT.

Classification A.—Package freight liable to loss or damage by water, protruding nails, material carrying odors, oil, grease, or moisture on interior of car, especially the floor.

Classification B.—Bulk freight liable to damage by water or to loss through small openings.

Classification C.—Freight liable to loss or damage by water or protruding nails, but which can not be lost through small openings.

The face of inspection certificate should be printed as follows:

INSPECTION CERTIFICATE. NORTH & SOUTH RAILROAD.

Car Initial..... No.....

O. K. for shipment of commodities.

Under

Classification.

Inspected by.....

Date.....19.. Station.....

On back of card, inspection instructions should be printed as follows:

INSPECT FOR

and see that car is free from following defects:

Classification "A."	Classification "B."	Classification "C."
Leaky roof.	Leaky roof.	Leaky roof.
Loose siding.	Loose siding.	Loose siding.
Loose roof boards.	Loose roof boards.	Loose roof boards.
Shifted roof sheets.	Shifted roof sheets.	Shifted roof sheets.
Broken door stops.	Broken door stops.	Broken door stops.
Leaky doors, tops and sides.	Leaky doors, tops and sides.	Leaky doors, tops and sides.
Broken end posts.	Broken end posts.	Broken end posts.
Broken or loose door posts.	Broken or loose door posts.	Broken or loose door posts.
Protruding nails in floor and lining.	Holes in floor and around center plates and draft bolts.	Protruding nails in floor and lining.
Floors or sides soiled by oil, grease or any material carrying odors likely to damage lading.		

(A) When there are inspectors located at points of loading the inspection will be made and certificates attached at that point.

(B) Where inspectors are located at a point from which empty cars are distributed to stations the inspection will be made and certificates attached at that point. This inspection will be confirmed by agent at loading point.

(C) In all other cases the agent at loading point should inspect the car and file certificates as below.

Aside from the Master Car Builders' inspection of car, including roof, running boards, air brakes, safety appliances and running gear, as well as the external inspection of sides, ends, doors, ventilators and windows, before inspection certificate is issued, an internal inspection must be made.

Search for loose, damaged and broken boards, loose knots, knot holes, bad joints, etc.

Search for all nails, spikes, screws and bolts extending above surface of floor and lining and nails protruding through roofing.

Search for water stains indicating cracks and air spaces.

Examine for metal sheets out of position along edge of sub-car line or down from edge of ridge pole.

Doors must open and close properly.

Inspect closely for defects in framing which might, by reason of their weakness, allow the sheathing to readily be broken or damaged.

Close doors, ventilators and windows and search for light indicating openings and cracks which might produce leaks.

Search for cracks sufficient to admit storm water beating

through opening; also for openings and bad joints around window and doors.

When a car is loaded by a shipper the inspection certificates must be detached from the car and delivered to agent before bill of lading is issued. All certificates finally must be filed by the agent at point of loading for future reference.

The report is signed by:—A. Kearney, (N. & W.), chairman; L. H. Turner, (P. & L. E.); C. N. Swanson, (A. T. & S. F.); J. M. Borrowdale, (I. C.); G. H. Gilman, (N. P.); A. B. Corinth, (A. C. L.), and R. L. Kleine, (Penna.).

(This report was accepted without discussion, and the committee continued.)

INTERLINE LOADING OF COMMODITIES.

The establishment of a uniform code of rules for the interline loading of commodities, a subject referred to the committee for investigation, was received rather late in the year; indeed too late to permit the research it evidently requires. Hence the committee is only able at this time to offer a report of progress, with the assurance that an effort is being made to ascertain what seems to be necessary to satisfactorily meet the requirements. It is the intention of the committee to go into this matter carefully during the coming year.

The report is signed by:—A. Kearney, (N. & W.), chairman; L. H. Turner, (P. & L. E.); C. N. Swanson, (A. T. & S. F.); J. M. Borrowdale, (I. C.); G. H. Gilman, (N. P.); A. B. Corinth, (A. C. L.), and R. L. Kleine, (Penn.).

(The report was accepted without discussion, and the committee continued.)

CAR TRUCKS

The following subjects were assigned by the executive committee to the committee on car trucks:

LIMITING DIMENSIONS FOR CAST STEEL TRUCK SIDES FOR 80,000, 100,000 AND 140,000 POUNDS CAPACITY CARS AND REVISION OF SPECIFICATIONS

On account of cast steel truck sides being generally covered by letters patent it was decided impracticable to recommend definite designs, but as standard designs of truck bolsters are submitted it becomes necessary to adopt limiting dimensions for



J. T. Wallis
Chairman, Committee on Car Trucks

the truck sides to provide for the application of the standard truck bolsters and interchangeability.

Limiting Dimensions.—To establish limiting dimensions the committee was governed by the following:

The height from top of rail to top of truck bolster (underside of truck center plate) was fixed at 26 $\frac{7}{8}$ in. with empty cars for all capacities.

The vertical height from the bearing surface of the truck center to the top of spring cap (or underside of bolster resting on spring cap) was fixed at 8 $\frac{3}{4}$ in. for all capacities. This dimension is correlated to the maximum height of side frame from rail which latter was established at 31 in. due to limitations of body car construction.

The vertical height from the top of spring cap (or underside of bolster), to top of side frame is dependent upon the capacity.

By adopting the use of the M. C. B. truck springs C for 80,000 lb. capacity, D for 100,000 lb. capacity and a five-cluster spring made up of coils the same as spring D, a uniform spring height is maintained for the three capacity trucks and all springs can be built up from the same unit coils. This establishes the height from top of spring plank (or bottom of lower spring cap) to top of rail, or 10 $\frac{1}{2}$ in.

A minimum distance of 4 in. is necessary as a safe clearance between bottom of side frame and top of rail with new wheels, bearings, etc., leaving 6 $\frac{1}{2}$ in. as a maximum total for thickness of spring plank and depth of bottom member of side frame, which latter is determined by design and capacity desired.

The widths of bolster openings are governed by the capacity and the width of spring base required, which also controls the wheel base.

The cross section of the top and bottom members of the truck side is determined from the capacity and governed by allowable stresses for members made of cast steel and controlled by the specifications and tests.

The limiting dimensions shown on Fig. 1 for the 80,000 pounds, 100,000 pounds and 140,000 pounds cast steel truck sides were established on the foregoing basis and are submitted for approval.

Specifications and Tests.—The committee recommends the following changes and additions in the present Recommended Practice:

After Section 10, Physical Properties, add new section for Proof Test, as follows:

Proof Test.—Each truck side shall be tested in a suitable machine to the loads shown in the table for different capacity trucks.

Car Capacity, Pounds	Initial Load Pounds	PROOF TESTS		
		Load, Pounds	Maximum Deflection, Inches.	Maximum Set, Inches.
80 000	20 000	110 000	0.15	0.01
100 000	25 000	125 000	0.15	0.01
140 000	35 000	175 000	0.15	0.01

After applying initial load, reduce load to 5,000 lb. and set deflection instrument at zero; apply the requisite proof load and measure deflection; reduce load to 5,000 lb. and measure the set.

Truck sides may be supported at each end, directly beneath the center line corresponding to center line of axle when side frame is in the truck and loaded at center of bolster opening midway between supports, or they may be supported in the center and loaded at the ends. The deflection and set shall be measured at the center line of spring seat.

Under Article IV. Weights. Section 13, Variation in Weights (new number 14), change to read as follows:

Limiting Weights.—Truck sides shall conform to the weights given in table. In case the castings have met all requirements except that of overweight, they may be accepted at the maximum allowable weight here specified:

Car Capacity, Pounds.	WEIGHTS, POUNDS.		
	Minimum.	Normal.	Maximum.
80 000.....	*415	*425	*445
100 000.....	490	500	520
140 000....	645	650	685

* Estimated.

Under Article VII (page 1130), Rejection. Section 16, Rejection (new number 17), change to read as follows:

Rejection.—In case the test pieces do not meet the specifications, all castings from the entire melt shall be rejected. All castings which fail to meet the requirements of the proof test shall be rejected.

Gages.—Gages have been designed to cover the limiting dimensions of cast steel truck sides with tolerances which each truck side must pass.

DESIGN FOR CAST STEEL TRUCK BOLSTERS FOR 80,000, 100,000 AND 140,000 LB. CAPACITY CARS AND REVISION OF SPECIFICATIONS

It was necessary for the committee to develop dimensions jointly for the cast steel truck sides and bolsters, keeping within general limiting dimensions for clearances and using the most adaptable sections for cast steel that would give the desired strength with minimum weight represented by the specifications.

Center Plates, Removable Type.—After careful consideration

it was decided to design the bolsters for removable center plates. Making provision in the new bolsters for detachable center plates simplifies the manufacture and permits the use of a drop forged center plate which is giving very much better service than the cast steel. The slight increase in first cost of the bolster with

of 1 inch in 28 inches, in that portion of the top plate of bolster where these side bearings will be located. Where roller side bearings are used the pockets for the adjustable side bearings are to be omitted.

[NOTE:—See Fig. 2 for recommended design of bolster for

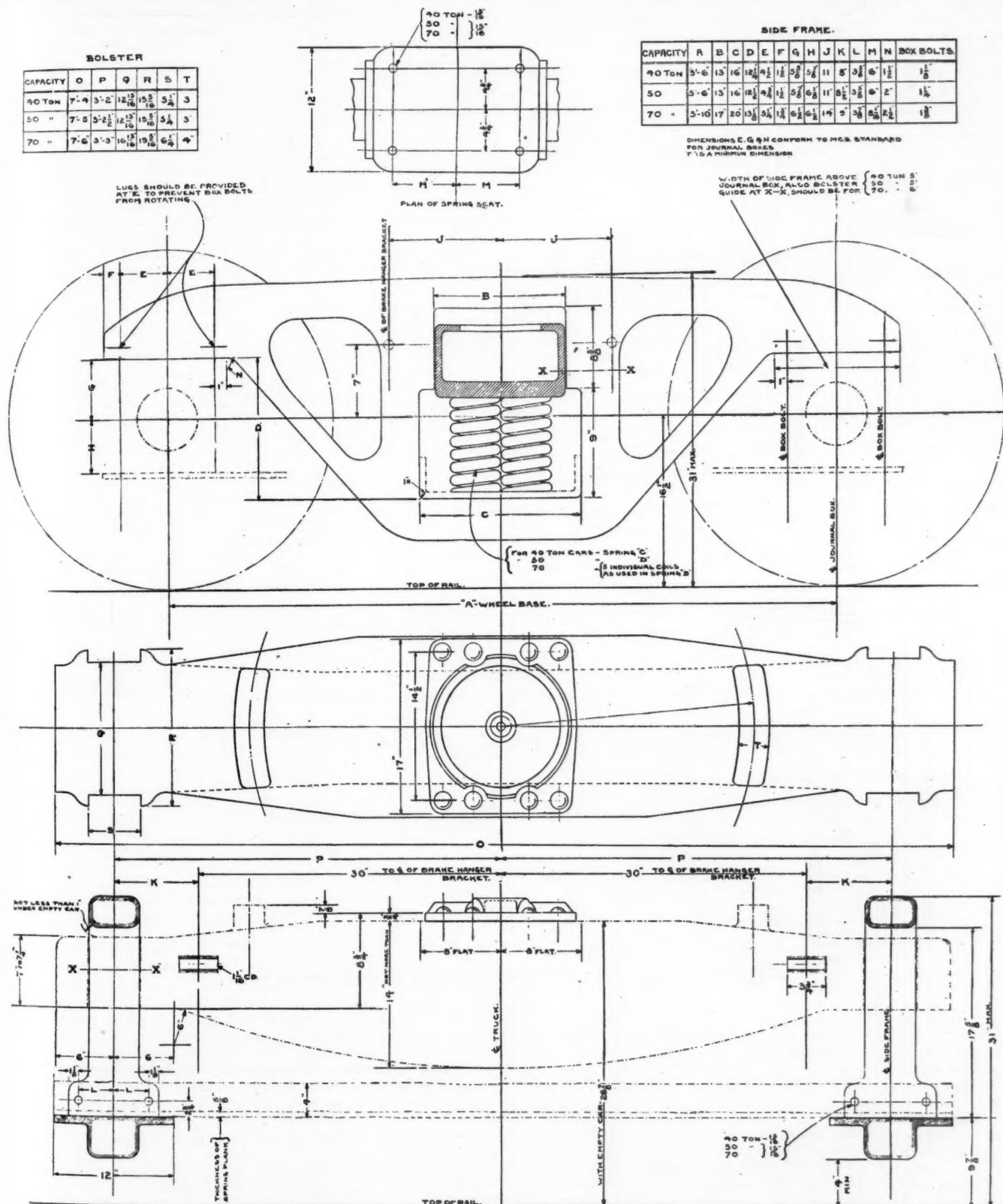


Fig. 1—Limiting Dimensions for Cast Steel Truck Sides and Bolsters for 80,000, 100,000 and 140,000 lb. Capacity Cars

the removable center plate is more than offset by its advantages.

Adjustable Side Bearings.—The committee has resigned the truck bolsters to be equipped with flat adjustable side bearings. Provision has also been made for the use of roller or other anti-friction side bearings by establishing a uniform slope, ratio

100,000 lb. capacity cars. Designs were also submitted for 80,000 lb. and 140,000 lb. capacity cars.—Ed.]

Specifications and Tests.—Since the committee is recommending a definite design of truck bolsters for each capacity car, which was based on a large series of tests, it is felt that a proof

load test may be omitted. The following changes in the specifications of the present recommended practice are submitted for approval.

Under Article III. Weights. Change Section 13, Weights, to read as follows:

Limiting Weights.—Bolsters shall conform to the weights given in table. In case the castings have met all requirements except that of overweight, they may be accepted at the maximum allowable weight here specified.

Car Capacity, Pounds.	WEIGHT, POUNDS.		
	Minimum.	Normal.	Maximum.
80 000	*660	*675	*700
100 000	735	750	780
140 000	*855	*875	*910

* Estimated.

Pressed Steel Bolsters, Alternate Standard.—As the pressed steel bolsters (built-up type) are in general use the committee

CLEARANCE OF SIDE BEARINGS

The clearance of side bearings depends on the spacing or spread of the side bearings. The committee recommends the following:

SIDE BEARING CLEARANCE FOR NEW CARS

	Minimum.	Maximum.
Per side bearing	$\frac{1}{8}$ in.	$\frac{1}{8}$ in.
Total (one truck)	$\frac{1}{4}$ in.	$\frac{1}{2}$ in.

CONSTRUCTION OF CENTER PLATES FOR STANDARD FREIGHT CARS

This subject was recommended for review by W. J. Tollerton, general mechanical superintendent, Rock Island Lines, and was touched upon in last year's report, in which it was stated that the present standard center plate with 100 sq. in. bearing area, shown on sheet M. C. B. 20, has been generally adopted with slight modifications on 80,000 and 100,000 lb. capacity cars, and we have not heard of any serious objection to it. A change in the over-all height of the center plates as well as the rivet spacing is necessary to make these center plates applicable

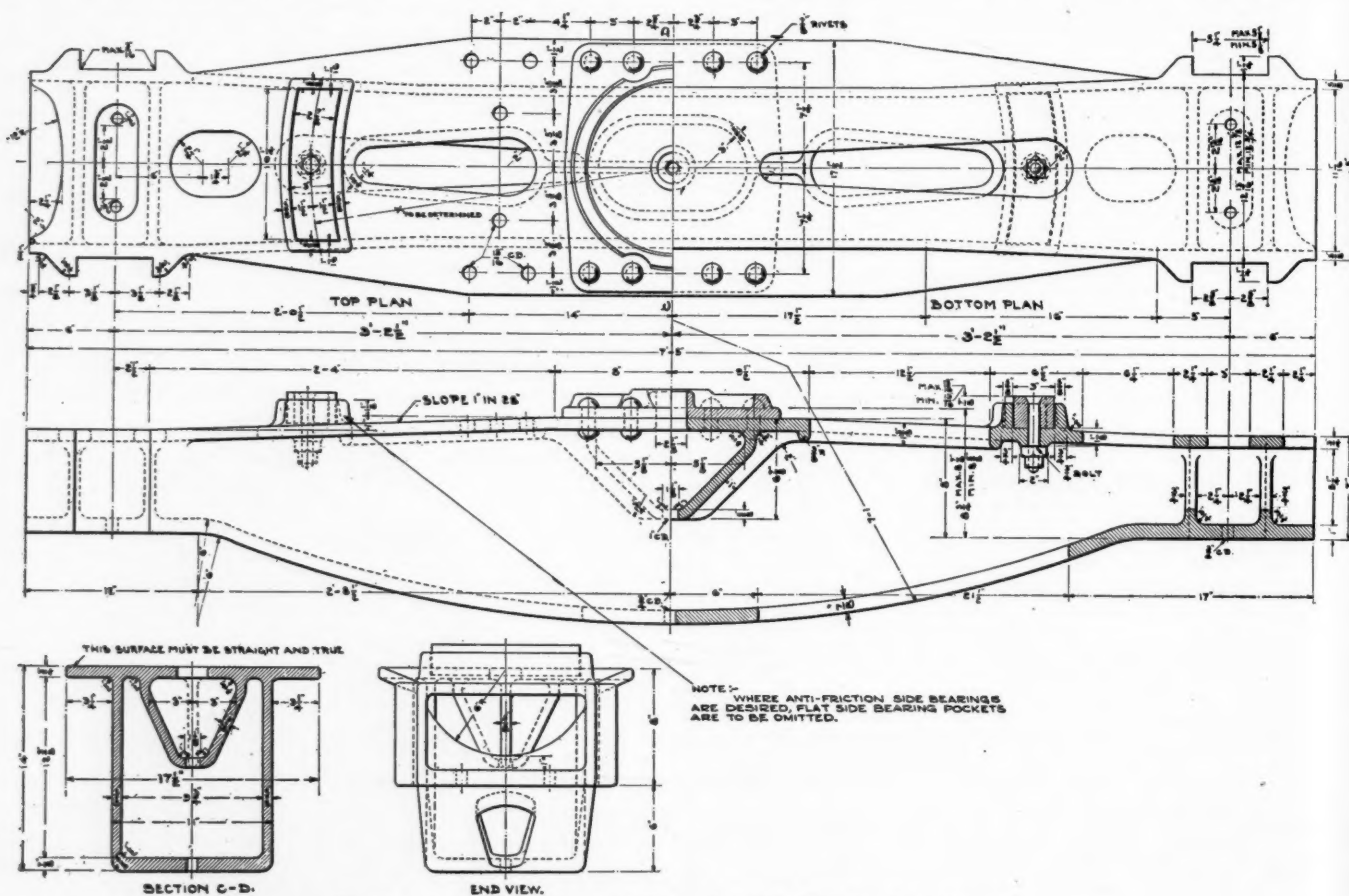


Fig. 2—Cast Steel Truck Bolster for 100,000 lb. Capacity Cars

deemed it advisable to also present designs for consideration, which are interchangeable with the cast steel bolsters, and which would provide an alternate standard. [NOTE:—See Fig. 3 for pressed steel truck bolster for 100,000 lb. capacity freight cars. Designs were also submitted for 80,000 lb. and 140,000 lb. capacity cars.—Ed.]

Gages.—Gages have been designed with tolerance for gaging the bolster as well as to provide for interchangeability.

SPREAD OF SIDE BEARINGS, CENTER TO CENTER, ON VARIOUS CAPACITY FREIGHT CARS FROM 60,000 TO 100,000 POUNDS.

On account of the great difference in opinion among the various roads, the committee has not been able to decide on the proper distance for spread of side-bearings on 100,000 lb. cars and those of less capacity. In view of the fact that there are comparatively few 140,000 lb. capacity cars in the country, the committee has seen its way clear to recommend a spread of 50 in., center to center, on cars of this capacity and believe that it would be wise to make the same recommendation in regard to other capacity cars, but desires to have another year to go over the matter thoroughly before making a definite recommendation for the 80,000 and 100,000 lb. capacity cars.

to cars of steel construction and to the bolsters recommended. It is essential that the center plates be made of either steel castings or drop forgings; the latter are preferable as they can be more accurately manufactured and have smoother bearing surfaces, the cost being slightly in favor of the drop forging.

SPRINGS FOR TRUCKS

The cast steel truck side limiting dimensions and the bolsters for the 80,000, 100,000 and 140,000 lb. capacity freight cars have been designed to accommodate the springs shown on sheet M. C. B. H of Recommended Practice, as follows:

Spring "C" for cars 80,000 lb. capacity.

Spring "D" for cars of 100,000 lb. capacity.

Five double-coil cluster—made up of coils the same as used in Spring "D"—for cars of 140,000 lb. capacity. See Fig. 4.

This enables the same design outside and inside coils to be used for all three capacity trucks by varying the combination of number of coils and using the different design of spring caps according to capacity.

Experiments with alloy steel springs are still in progress but

not developed to the stage where definite recommendations can be made.

STRENGTH OF ARCH BAR TRUCKS AS COMPARED WITH CAST STEEL TRUCK SIDES

The committee was requested to prescribe limiting strains per square inch for arch bar trucks with a view to establishing a

the brake beam hangers and to prevent wear, they will not be efficient when the emergency arises for them to perform their function. Furthermore, with the present lack of interchangeability and the uniformity of design of brake beams and trucks, it would be impracticable to design a standard safety hanger which would be generally applicable. The committee finds little cause for the employment of brake beam safety hangers where the brake beam hangers and connections are designed and manu-

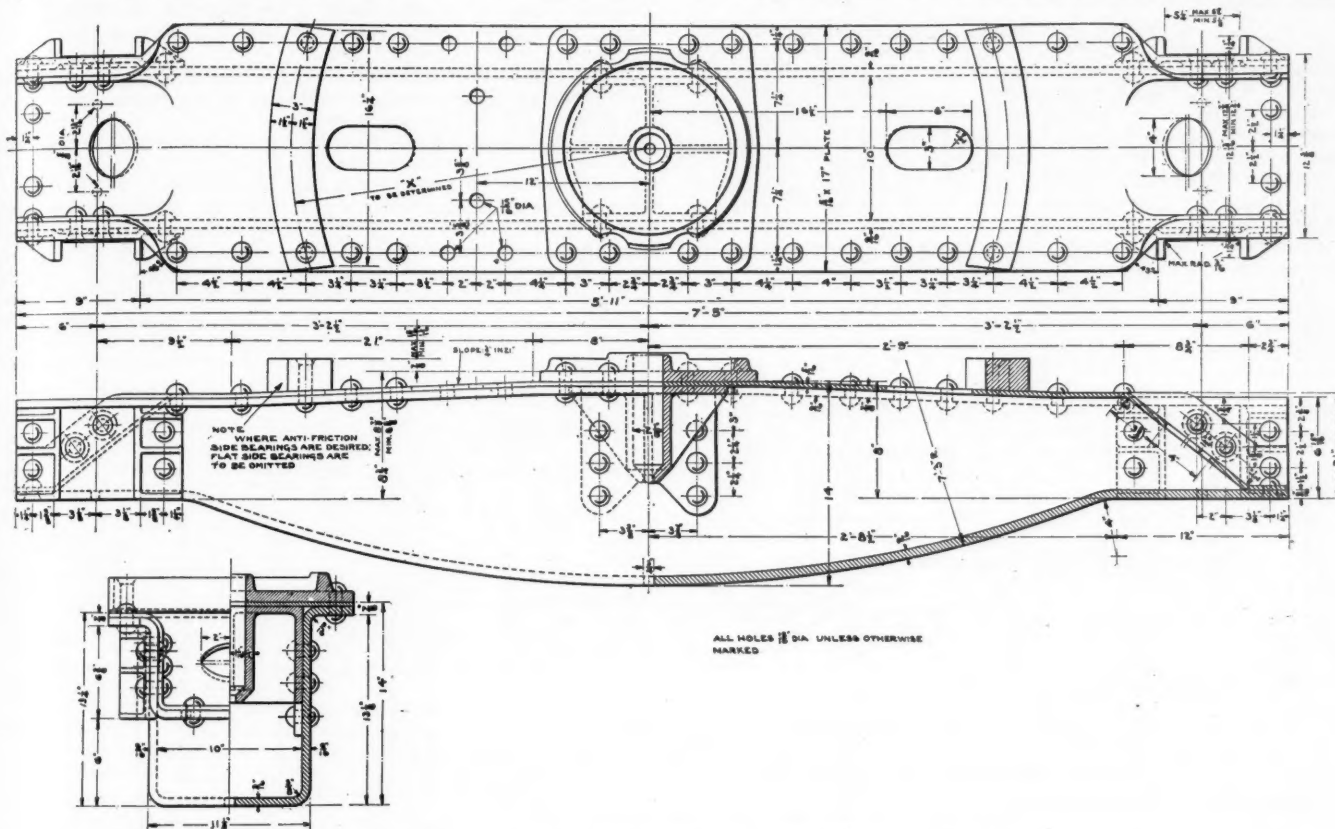


Fig 3.—Pressed Steel Truck Bolster for 100,000 lb. Capacity Cars

standard along these lines and reported last year that little would be accomplished in endeavoring to harmonize the different formulae used, but advised that physical tests were being conducted with truck side frames built up of M. C. B. and other designs of arch bars. Tests were also conducted on cast steel truck sides and the results of two of these, which are representative of the Modified M. C. B. Specifications, as well as the results with the arch bar types, were plotted graphically to show comparative center line deflection and permanent set.

The comparative tests show conclusively the decided superiority of cast steel truck sides, conforming to the Modified M. C. B. Specifications, over the arch bar truck sides.

GAGES FOR 6 IN. BY 11 IN. JOURNAL BOXES

Gages for 6 in. by 11 in. journal boxes were adopted as Recommended Practice last year and the committee presents Fig. 5, showing the gages. [Instructions governing the use of the gages were also presented.—Ed.]

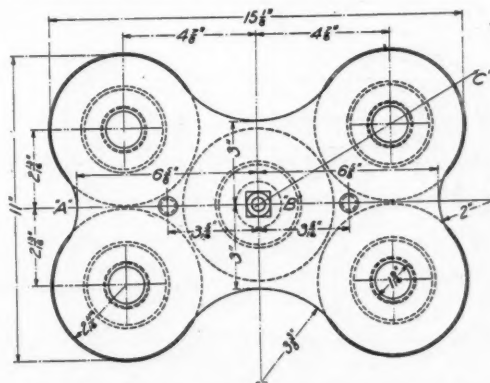
SAFETY HANGERS FOR BRAKE BEAM

The committee on standards and recommended practice referred to the committee on freight car trucks the following from A. R. Ayers, general mechanical engineer, New York Central Lines: "The matter of falling brake beams on freight cars is a serious one, and we believe is of enough importance to be called to the attention of the M. C. B. Association, with the idea of bringing about some action that will provide for the application of some device for preventing brake beams falling on track due to failure of hangers, preferably by the application of safety straps to the truck spring plank. We would suggest that this matter be called to the attention of the committee on standards and recommended practice, in order to get something started along this line."

The committee has given this subject careful thought and their experience with the majority of brake beam safety hangers has been that these devices have been inefficient and a source of expense from a maintenance standpoint. Unless they are designed with a strength at least equal to the loads imposed upon

factured with proper care and believe that the remedy lies along these lines rather than in the adoption of the auxiliary device of brake beam safety hangers.

The report is signed by:—J. T. Wallis, (Penn.), chairman;



TEN BARS. FIVE BARS 1 1/4\" DIA., 73 1/2\" LONG, TAPERED TO 80%;
 3/4\" 74 1/2\" 77 1/2\"
 NORMAL WT. OF EACH 1/2 FIVE BARS 23 LBS. MINIMUM 22 LBS. 5 OZ.
 2 2 6 LBS. 7 OZ. 6 4
 OUTSIDE DIAM. OF 1 1/2 FIVE COILS 5 1/2\"; 2 2 FIVE 2 1/2\"
 HEIGHTS: FIRST FIVE COILS 8 1/4\" FREE; 6 1/2\" SOLID; 7 1/4\" 7400 LBS. CAP'Y. 12500 LBS.
 SECOND 2100 3500
 CLUSTER OF SPRINGS
 HEIGHTS WITHOUT CAPS, 8 1/4\" FREE; 6 1/2\" SOLID; 7 1/4\" 47500 LBS. CAP'Y. 80000 LBS.

Fig. 4—Arrangement of Spring Coils for 140,000 lb. Capacity Freight Car

J. J. Tatum, (B. & O.); E. W. Pratt, (C. & N. W.); James Coleman, (G. T.); Prof. M. C. Schmidt, (U. of I.); L. C. Ord, (C. P. R.), and J. McMullen, (Erie).

In presenting the report Mr. Ord said: Since the report was printed, the committee have one or two changes in sheet B to which they desire to call your attention. In the sketch showing the truck side you will notice that the top bolster bearing area at the side does not come down to the bottom of the bearing area on the bolster, and the changes to be made in the dimensions of the top bearing area are from $8\frac{5}{8}$ in. to $9\frac{5}{8}$ in., which will give the bolster the support of the full length of the bearing area.

There is a change in the tabulated column under the heading "Side Frame," at the right hand side of the sheet. Item J contains an error. Instead of the figures for the 70-ton capacity being 14 in., as shown, they should be changed to 13 in.

The committee desires to further consider the brake beam top suspension pin location as shown on the sketch. As at present shown, it is entirely satisfactory and proper for beams with the center suspension, but with maximum wear of shoe and tire, it was felt advisable to try to change the location of the hanger, to provide the longest possible hanger, and also provide the cases where the beam was used on trucks without top suspension.

Yesterday a motion was made regarding the brake beam safety hanger fastened on the brake beam, and the committee would recommend the dropping of the attachment of the brake beam safety hanger from the brake beam as shown.

provide satisfactory limiting gages to insure the interchange of these plates. The figures shown in the report merely indicate the general design, while the gages will control the variations, which will cover the question raised yesterday as to the amount of clearance which should be allowed for different types of bolsters.

DISCUSSION

C. E. Fuller: I would make a motion that the committee change the radial clearance on center plates from $\frac{1}{8}$ in. to $\frac{1}{4}$ in. in their recommendation.

L. O. Ord: The committee was particularly anxious that the Association did not take the figures shown on the center plate as their recommendation for clearances, but merely as indication to serve as maximum dimensions. It realizes that the amount of clearance shown is not the working surface, and it was the understanding that that would be taken care of with the gage limitations that will run with, or work up to, the possible mean clearances as shown in the figures. That will cover what Mr. Fuller desires; in other words, we propose to take care of that point in the manner embodied in this report and covered in the gages which will be submitted for your approval.

L. C. Ord: It is the intention to make gauges for all cars, and these gauges will take care of the maximum and mini-

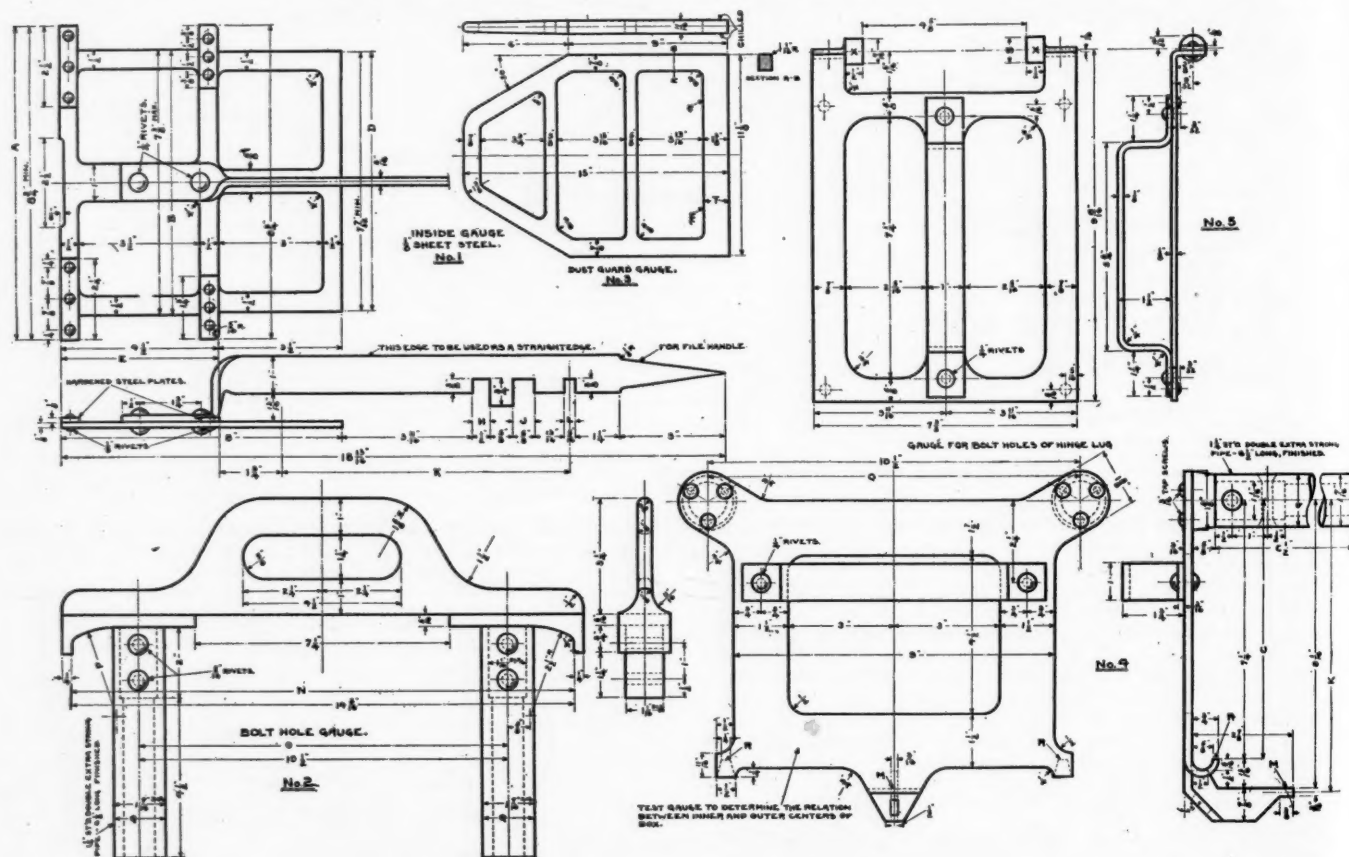


Fig. 5—Journal Box Gages for 6 in. by 11 in. Journal

There is, however, one other point which occurs in this connection. The Canadian Government has seen fit, through its Railway Commission to make compulsory the brake beam safety hanger, and the Canadian roads, therefore, on Canadian-owned cars, must maintain the brake beam safety hanger. By omitting this from the brake beam it will relieve some roads from the necessity of having the hanger connection on the beam, when they do not use it.

The matter of center plate clearance was brought up yesterday, and it was not entirely clear to the committee whether the members were talking about lateral clearance or vertical clearance between top and bottom plates. They will answer the question that on the lines shown the vertical clearance between top and bottom center plates was 3-16 in. back and front, and at the sides 7-16 in., while the radial clearances between the intermeshing parts of top and bottom plate are 1-16 in. on radial lines, or $\frac{1}{8}$ total on the drawing.

The committee realizes if the center plates are to be interchanged among the various roads, it will be necessary to

make allowances which are possible. If you had a set of gauges and they allow a fixed maximum or minimum you are perfectly safe as long as you have variation enough between the points, but be sure you get nothing in excess of that. You must use some limiting figures, and these figures should be considered as absolute minimums under the gauge. In former practice with the cast steel bolsters, larger variations were necessary, but when the drop forging was brought out on account of being able to work to closer dimensions, a limit was put on a number of these bolsters, to allow for less variation consistent with the more exacting service which is obtained from them. That is why these figures show as close as they do. They should not have shown as closely as that, for general practice, and that is why the committee wishes to point out that these figures were, as you see, maximum dimensions for the male, and minimum for the female under gauging, as the closest you should go. The average railroad could run as much in excess of that as is necessary for successful operation with

the particular class of cars which it was using. The committee felt that if the bolsters are to be interchanged over all the country, it cannot be accomplished by any other way than by standardizing gauges or limiting dimensions.

C. E. Chambers, (C. of N. J.): I do not think the committee has allowed enough side bearing clearances. We have had some personal experience with cars derailing in yard movements, steel underframe cars and steel cars, where they had $\frac{1}{4}$ in. at each point of side bearing clearance, and by changing that to $\frac{3}{8}$ in., the derailment would stop.

J. F. DeVoy, (C. M. & S. P.): It does not seem to me that the committee has made any definite recommendations as to doing away with the safety hanger support.

L. C. Ord: It is the intention of the committee on trucks to recommend that that hold be omitted from the recommended practice.

C. F. Giles, (L. & N.): Under the heading of "Adjustable side bearings," in providing for the application of roller side bearings, it appears that the committee fails to make any provision for taking up the excessive wear which they have in the case of the solid or adjustable side bearing. It is just as important, in my opinion, to provide means for adjusting the wear on roller side bearings as on solid side bearings. Mr. Chambers speaks of the committee failing to allow sufficient side bearing clearance. That depends, according to our experience, largely on the type of the car. We have had quite a number of derailments with high side hopper cars, largely due to the high center of gravity, and we found it was impossible to allow as much side bearing on these cars as we did on the ordinary type of cars, with the center of gravity very much lower.

C. E. Chambers: I will say that we have 14 ft. radius box cars, 40 feet in length, derail around our yard. These are 80,000 lb. capacity insulated box cars built for ice traffic. When we get them new, and they are engaged in yard movements, where there are short curves, they give a lot of trouble in derailing, and also at the ice houses along the line. We did not do a thing but raise the center plate, and give them $\frac{3}{8}$ in. at each point, instead of $\frac{1}{4}$, which they previously had, and that cured the trouble.

L. C. Ord: The question of the adjustment of side bearings was taken care of by the committee as far as it was possible for them to go. Instead of showing on the cast steel bolster the side bearing bottom location solid, it is pocketed, to provide for its adjustment, and still retain it in place. In the matter of clearance of side bearing there is one point which it is important to keep in mind. In talking about the side bearing clearance on any car the spread should be considered at the same time. As the committee recommended a spread of 50 inches, it will explain the reason why their dimension is not quite so large as some of the roads would recommend.

The committee has done some research work in connection particularly with high capacity and stiff cars. The reason the recommendation of a spread in the side bearing shows only on the very heavy capacity cars is that quick elevation on a short turnout, or over a curve, due to the differences in the elevation of the track opposite both bolsters make them sufficiently out of line to carry the momentum across the diagonally opposite side, and as the car body is stiffer, it has less ability to weave and will not transfer the load, which is the cause of derailment. On the opposite side of the curve there is not sufficient weight on the side bearing to prevent the wheel mounting, and this is what causes the difficulty. The committee want more information from the various roads as to the facts of the case with regard to side bearing clearance.

J. J. Hennessey, (C. M. & St. P.): I had some experiences in that connection about a year ago. Running over our line there were some 500 cars. The bodies of the cars were built identically alike. The trucks were different. One lot of these cars had $\frac{3}{4}$ in. side bearing clearances, and the other lot—about evenly divided—had side bearing clearances varying from $\frac{1}{8}$ in. to $\frac{1}{4}$ in. We had to take the cars with the large side bearing clearances off that division, on account of going around the division curves, which were very short, on account of the high center of gravity. The following four or five months after that we put the same cars back. The bodies of the cars had limbered up, and they were able, on account of being limbered, to take these short, reverse curves, and we had no more trouble. I think there is fully as much danger of too much side bearing clearance as there is of not enough. The spread of the car that I refer to was 48.

J. J. Hennessey: I move the report be referred to letter ballot, as the chairman of the committee has recommended. (The motion was seconded.)

L. C. Ord: Before you put that motion, Mr. President, I would like to make the same appeal that Mr. Kleine did with reference to transfers. There has been no more difficult experiment to try to make than to get a standard design for cast

steel truck sides and bolsters. The committee has asked you to try to forget the odd cases where that design may not apply or conform to your present standard, and in view of the cases where it will fit, to give it a trial for that case, and not to make the proposition of shelving a good work for the sake of safeguarding some point, and to ask the members, and to ask the manufacturers to come to the committee with their information before the meeting, so that they can have positive information. (The motion was then carried.)

R. L. Kleine (Penna. Lines): On page 8, under the heading of "Springs for Trucks," the last paragraph. "Experiments with alloy steel springs are still in progress, but not developed to the stage where definite recommendations can be made." The committee on specifications and tests now have under consideration this matter, in connection with other helical springs, and I move that that portion be referred to the committee on specifications and tests.

(The motion was carried.)

TRAIN LIGHTING.

In last year's report the committee recommended designs for standard pulley seats for application of axle pulleys, the designs being incorporated on exhibit showing M. C. B. standard $4\frac{1}{4}$ in. by 8 in. and 5 in. by 9 in. axles. This recommendation was rejected.

The committee's recommendation was made with a view of standardizing the size of pulley seats for straight and tapered axles, thus making possible the use of interchangeable bushings, which will materially facilitate the handling of electric-lighted cars.

The extension of axle-lighting devices has demonstrated the necessity for standardizing the size of pulley seats, not only from a standpoint of convenience in interchangeability, but from a standpoint of safety to equipment and economy in operation. The committee is therefore still of the opinion that the Association should approve as recommended practice the following:

PULLEY SEATS FOR TAPERED OR STRAIGHT AXLES.

The dimensions of axles at the point of pulley fit shall be in accordance with the dimensions shown in Fig. 1.

In last year's report the committee recommended standard dimensions for the inside of battery boxes. This recommendation was rejected on letter ballot, principally for the reason

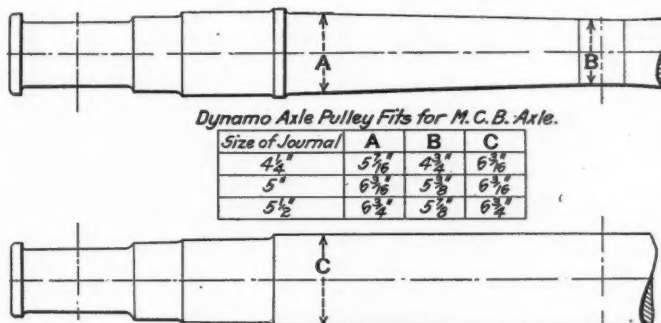


Fig. 1—Recommended Axle Dimensions for Pulley Fit

that the dimensions as given did not conform to the detail dimensions used by the various railroads. The committee feels that the M. C. B. Association should standardize the inside dimension of battery boxes for future construction, and again submits its recommendations to the M. C. B. Association as follows:

The inside clear dimensions of battery boxes should be as follows:

Depth, front to back, 2 ft. 4 in.
Height in clear, not less than $21\frac{1}{2}$ in.
Length of compartment for two standard double-compartment tanks or equivalent, $22\frac{3}{4}$ in.
Length of compartment for four standard double-compartment tanks or equivalent, 3 ft. $9\frac{1}{4}$ in.

At last year's convention the committee recommended that the battery-box tray be reinforced by safety angle irons or straps. This recommendation was not accepted on letter ballot. The committee feels that the liability of battery trays dropping down on the track is a sufficient hazard to justify the installation of safety irons or angles and again submits its recommendations as follows:

That in all battery-box designs, two angle irons or straps shall extend longitudinally under the battery box in such a location that in case of a defective battery-box floor the battery trays will be supported by the said angle irons or straps; the angle irons or straps shall be supported to the car body independent of the battery box proper and shall be of sufficient strength in all parts to safely support the battery in accordance with the

weight shown in paragraph 8 and the additional weight of the battery box proper, and the angle irons or straps and the supports for same shall be so installed that they can be readily inspected for corrosion.

As the majority of roads have modified their fixtures so as to accommodate the standard G 18½ bulb, and the committee recommends the following:

The cut of the G 18½ bulb, as shown on Recommended Practice Sheet U-9, be changed to have an over-all length of 3¾ in. with a variation of ¼ in. and a width of bulb of 2.5-16 in. with a variation of 1-32 in.

PULLEY FIT FOR AXLE-GENERATOR SHAFTS AND AXLE-GENERATOR PULLEYS.

The committee has given considerable attention to the question of standard pulley fit for axle-generator shafts and standard generator pulleys. With a view to standardizing these fixtures the committee would recommend that it be continued and that it be authorized to confer with a committee of manufacturers of car-lighting devices and a committee of the Association of Railway Electric Engineers, with a view to reaching final conclusions so that designs may be submitted to the Association as a recommended practice.

The report is signed by:—T. R. Cook, (Penna.), chairman; C. A. Brandt, (C. C. C. & St. L.); Ward Barnum, (L. & N.); D. J. Cartwright, (L. V.); E. W. Jansen, (I. C.); J. H. Davis, (B. & O.), and C. H. Quinn, (N. & W.).

The report of this committee was read by T. R. Cook, Penna. Lines. At the conclusion of the report, Mr. Cook added:

I desire to emphasize the items Nos. 12 and 13. Item No. 12 covers the standard dimensions for pulley fits on straight axles, or axles with a straight pulley fit. This was turned down on letter ballot last year, I presume due to a number of reasons. First, the mechanical men of some of the railroads do not believe in a straight axle. Second, the question of having two kinds of axles for your equipment. Now those points are all well and good, but there are a number of roads that are using straight axle fits or pulley fits on their axles, and the diameter of the pulley fits vary, which necessitates carrying different sized bushings and is the cause of considerable unnecessary expense.

Item No. 13 gives recommended dimensions for battery boxes. On investigation of this subject, your committee found that the battery boxes all over the country varied considerably, the principal difference being the depth of the box. Now, the dimensions as given by the committee not only take care of the standard tray as adopted as Recommended Practice, but also for a sufficient addition in depth to, in the committee's mind, take care of any of the immediate future developments in the battery situation.

E. W. Pratt (C. & N. W.): I move that the recommendations of the committee be submitted to letter ballot, and that the committee be authorized to follow their suggestions with regard to conferring with the manufacturers, and so forth.

(The motion was carried.)

TANK CARS

Probably the most important question presented to the committee has been the question of the continued use in transportation service of the old tanks, originally on wooden underframes.

The committee held a joint meeting, January 6, 1914, with the Bureau of Explosives of the American Railway Association, as well as with a number of owners of tank cars. The general question was whether old tanks transferred to new steel underframes should not be put on the same basis as tank cars built after 1903, viz., required to stand the 60 lb. test pressure. Some of the owners considered that this would be an unnecessary hardship, and proposals were even made to lower the test pressure to 20 lb. Following the meeting, yard tests were made of an old condemned tank (see Appendix), from which the conclusion was drawn that a tank which would stand 20 lb. water pressure without leaking would withstand the shock acquired in transportation when filled with a liquid of the same viscosity as water. Notwithstanding this, the committee feels that it is unwise to permit the unrestricted transfer of old tanks to steel underframes, especially where they are to carry inflammables, such as the gasolines.

The committee feels also that there should be a distinction between cars carrying inflammables and those carrying other products not involving the safety question; also, that the interval between the hydraulic tests should be shorter as the age of the tank increases; that definite provision should be made in the specification for the retirement from transportation service of tanks which can not meet the test requirements.

Another point which has been called to the attention of the

committee is that in many cases the pressure tests have not been made by filling the tanks with cold water as prescribed, in some cases air pressure having been used, or hot water, or even steam. The committee does not feel that such tests meet the spirit of the specification, and do not insure the detection of the leaks to the same extent that the cold-water pressure will do.

The committee recommends the following amendments of the 1913 Specifications for Tank Cars:

That a new paragraph be added under General Requirements (page 2), as follows:

"(d) Tanks which do not meet the prescribed tests shall be withdrawn from transportation service."

Section 5, Test of Specifications for Ordinary Tank Cars, be amended to read as follows:

Tanks must be carefully inspected and tested before being put into service, again at an interval of ten years, and after that at intervals of not over five years; with the exception that where tanks are used for carrying corrosive products, deterioration is to be expected in a shorter time, and the first test period shall then be reduced to five years. Tanks requiring this five-year test shall be those used for carrying chemicals, such as acids, ammonia liquors, and such other products as hereafter may be specified.

Provided, that any tank damaged to the extent of requiring renewal of sheet, or extensive riveting or recaulking of seams, shall be re-tested before being returned to service.

All tests shall be made by completely filling the tank with water of a temperature which shall not exceed 70 deg. F. during test. The prescribed pressure must be held for not less than ten minutes after the tank has been caulked tight, and may be applied in any suitable manner.

The tests for tanks built prior to 1903 shall be at 40 lb. per sq. in., and for tanks built since that date at 60 lb. per sq. in., which they must stand without leak or evidence of distress.

After January 1, 1915, all tanks tested to less than 60 lb. pressure shall be stenciled "Not to be used for liquids requiring the inflammable placards under the I. C. C. regulations."

After January 1, 1918, all tanks in transportation service shall be subjected to the full test requirements of 60 lb. per sq. in.

Tanks when tested must be stenciled with the date, pressure at which tested, place where test was made, and by whom, as follows:

Tested (date)
Pressure (lb. per sq. in.)
At (place)
By (name of firm)

The tank-car owner shall be responsible for the proper carrying out of all inspections and tests and stenciling, and for the certification of the tests to the Bureau for the Safe Transportation of Explosives and Other Dangerous Articles (see Section 8).

Section 7, Test of Safety Valves, Specifications for Ordinary Tank Cars, be amended to read as follows:

Safety valves must be tested and adjusted if necessary (a) on new cars, before the cars are put into service; (b) on existing cars, by January 1, 1916; and thereafter on all cars at intervals of not over two years.

When valves are tested, the date, pressure to which tested, place where test was made, and by whom, must be stenciled on the body of the tank, near the end and adjacent to the stenciling for test of tank, as follows:

Tested (date)
Pressure (lb. per sq. in.)
At (place)
By (name of firm)

In addition to stenciling on body of car, there shall be stamped on body of valve, in ¼- or ⅜-in. figures, the date of test and pounds pressure to which valve was tested. Date of test on tank and last date on valve must correspond.

The test may be made without the removal of the valve from the car, provided the valve unseats at a total pressure corresponding with the area of the seat multiplied by the required pressure.

Valves improperly set, or not tested and stenciled at proper intervals, shall constitute defects for which the owner shall be responsible.

The tank-car owner shall be responsible for certification of tests to the Bureau for the Safe Transportation of Explosives and Other Dangerous Articles (see Section 8).

That a new paragraph be added following Section 7, as follows, the remaining sections to be renumbered accordingly:

"8. Certification of Tests. Certificates of all tests of tanks and their safety valves shall be sent to the Bureau for the Safe Transportation of Explosives and Other Dangerous Articles, in such form as may be prescribed by the Bureau."

The report is signed by:—A. W. Gibbs, (Penn.), chairman;

C. E. Chambers, (C. of N. J.); J. W. Fogg, (B. & O. C. T.); Thos. Beaghen, Jr., (Union Tank); Wm. Schlafge, (Erie), and C. A. Shoemaker, (Ger.-Am. Car Lines).

APPENDIX TANK-CAR TESTS

The tank car tested is owned by the St. Louis Oil Company and was sent to the Pennsylvania Tank Car Company for a new tank, the old tank having been condemned. The tank was originally on a wooden underframe, but in May, 1913, it was equipped with a steel underframe. At that time, we are informed by the Pennsylvania Tank Car Company, the tank was tested to a pressure of 40 lb. per sq. in. and no leaks developed. After the tank was put into service it developed leaks and was condemned. The inside of the tank was free from scale.

Three holes were drilled and tapped in the one end of the tank, and an indicator with a clock escapement was connected to the bottom hole for tests Nos. 1 to 7 inclusive, and to the top hole for tests Nos. 9 to 17, inclusive. An 8-lb. spring was used in the indicator on all the tests. The tank was filled with water to within 18 in. of the top of the barrel, or 44 in. from the top of the dome. The tank was shifted at speeds varying from 8 to 14 m.p.h., and kicked into other cars standing in the yards. A couple of tests were made with the locomotive pulling the tank around the yard and giving it light shocks such as it would receive when being cut out of a train.

The following table shows the results of these tests:

Test Number.	Max. Pressure, Lb.	Inches Indicator was Above Bottom of Tank.	
1	2 1/4	12 1/4	Tank hauled around yard and not receiving severe shocks.
5	9 1/4	12 1/4	Kicked into cars on siding.
6	9 3/4	12 1/4	Kicked into cars on siding.
7	10	12 1/4	Kicked into cars on siding.
8	8 3/4	12 1/4	Kicked into cars on siding.
9	5	36 3/4	Kicked into cars on siding.
10	5 1/2	36 3/4	Kicked into cars on siding.
11	8 3/4	36 3/4	Kicked into cars on siding.
12	11 1/4	36 3/4	Kicked into cars on siding.
13	6 1/2	36 3/4	Kicked into cars on siding.
14	1 1/4	36 3/4	Tank hauled around yard and not receiving severe shocks.
15	8 1/2	36 3/4	Kicked into cars on siding.
17	8 3/4	36 3/4	Kicked into cars on siding.

The water in tests Nos. 7 and 8 was surging toward the opposite end from the indicators when the tank received its shock, thus causing the pressure to be less than it should have been, and the surging of the water while running in test No. 7 shows a surging equal to 1/2 lb. pressure over standing. During test No. 7 the front journal boxes were broken on the left side of both trucks, and in test No. 17 the coupler broke. The car was then placed in the shop and filled with water and 25 lb. air pressure applied without causing any leaks.

From these results it can be concluded that a tank which will stand 20 lb. water pressure without leaking will withstand the shock acquired in transportation when filled with a liquid of the same viscosity as water.

(Signed) C. D. YOUNG,
Engineer of Tests, Pennsylvania R. R.

DISCUSSION

A. W. Gibbs (chairman of committee): One of the faults of the tank cars today is the bad construction of the discharge valves. There is a great deal of trouble from leakage. The tanks move on the frames, and the valves are frequently corroded and leaky, and the contents lost. The committee has not felt like making a design, but would merely urge on the owners of the tank cars that this subject receive more attention, and that the present discharge valve is a pretty poor device.

We have had a number of requests to mark light weight on the cars. This came up in the original meetings of the tank car committee over ten years ago, and it was objected to by the traffic people owing to the fact that there were very great differences in the weights of commodities; that marking weights and capacities caused a great deal of contention between shippers and consignees, and so for that reason we have never put light weight on the car, although, mechanically, the committee has had no objection to it. It is a traffic matter pure and simple, and we have left that to the traffic people.

R. E. Smith (A. C. L.): I would like to ask the chairman of the tank car committee if the question of stenciling the light weight on the tank cars has not recently been taken up with the chairman of the committee, or some member of the committee?

A. W. Gibbs: The General Managers' Association of the Southeast has been urging this for several years. The last time it was officially noted was before one of the classifica-

tion committees, and they declined to recommend the light weight.

H. E. Felton (Union Tank Line): My understanding is that as the commodity transported is of an estimated, or more properly speaking, an actual average weight per gallon, that the question of transportation under that rule, and the assessment of freight charges might be seriously interfered with, and also the question of marketing, if the capacity weight were stencilled onto the tank.

R. E. Smith: Mr. Chairman, it is stated in the correspondence with the General Managers' Association of the Southeast, that the objection on the part of the traffic department to the stencilling of the light weight on tank cars has been greatly exaggerated, and that there is no real objection on the part of the traffic department.

The secretary: If you refer to the report of the 1907 meeting, when the tank car committee reported, you will find there a very clear explanation of this question, and it was on the lines suggested by Mr. Felton.

The President: It looks as if the Southeastern General Managers' Association expected that the Master Car Builders' Association would handle the matter of marking the light weights on the cars, and that is why they have taken it up with this association; but this association evidently is not in the position to take the initial action on the question. We will instruct the secretary to advise the General Managers' Association that that matter was discussed here, and tell them the consensus of opinion.

J. J. Hennessey (C. M. & S. P.): I move that the committee's report be received and referred to letter ballot.

(The motion was carried.)

ADDITIONAL MASTER CAR BUILDERS' REGISTRATION

Barnes, P. H., Gen. Car Foreman, Balto. & Ohio, Pennhurst.
Bawden, Wm., M. M., Wiggins Ferry, Elwood.
Bowersox, Chas., M. M., T. & Ohio Cent., Chalfonte.
Brogan, Jas. P., G. F., Dela., Lack. & West., Haddon Hall.
Bundy, C. L., G. F., D. L. & W., Haddon Hall.
Carmer, J. R., G. F., P. B. & W., Haddon Hall.
Cartwright, David J., Elec. Engr., Lehigh Valley, Dennis.
Cunningham, J. L., M. M., Phila. Balt. & Wash., Chalfonte.
Davis, J. H., Elec. Engr., Baltimore & Ohio, Glaslyn Chatham.
Dawson, L. L., S. M. P., Ft. Worth & Denver City, Brighton.
Demarest, H. N., G. C. I., Penna., Traymore.
Dobson, W. E., Gen. Aud., Cambria & Indiana.
Drury, M. J., Supt. Shops, A. T. & S. F., Traymore.
Dunn, J. F., A. G. M., Oregon Short Line, Chalfonte.
Durham, Geo., M. M., D. L. & W. R. R., Traymore.
Eckhart, Jno., Jr., F. C. R., Erie, Beaumont.
Evans, G. I., Supt. Loco. Shops, Can. Pas., Traymore.
Fox, Geo. P., D. G. C. E., N. Y. C. & H. R., Pennhurst.
Freeman, J. D., Con. Fore. Car Dept., Sunset Central, Traymore.
Frisco, William F., Supt. Car Dept., Live Poultry Transit Co., Alamac.
Fritts, J. C., M. C. B., Dela., Lack. & Western, Traymore.
Gibbs, A. W., C. M. E., Penna., Chelsea.
Gilson, A. J., Master Car Repairer, S. P., Haddon Hall.
Gillespie, W., M. C. B., Central Vermont, Schlitz.
Gray, B. H., S. M. P., New Orleans, Mobile & Chicago, Monticello.
Gray, G. M., S. M. P., Bessemer & Lake Erie, Lexington.
Griffin, H. C., Con. Car Inspector, Canadian Pacific, Shelburne.
Hartman, F. B., Gen. Equipment Inspector, Southern, Arlington.
Henry, J. M., M. M., Penna., Chalfonte.
Hill, Rufus, Penna.
Hyland, W. V., Supt., Ligonier Valley, Shelburne.
Jansen, E. W., Electric Engineer, Illinois Central, Dennis.
Keagy, C. O., G. F., Penna., Haddon Hall.
Keiser, C. B., M. M., Penna., Marlborough-Blenheim.
Kuhn, W. T., Supt. Motive Power, T. H. & B., Traymore.
Lovell, Alfred, Traymore.
McAmis, W. H., M. M., Charlotte Harbor & Nor., Lexington.
Melay, H. C., Chief Electrician, L. S. & M. S., Alamac.
Mengel, John C., M. M., Penna., Chalfonte.
Miles, C. J., Gen. Manager, Doud Stock Car Co., Traymore.
Muhlfeld, J. E., Special Representative, Various Railroads, Marlborough-Blenheim.
Mussey, Wm. H., A. E. M. P., Long Island, Galen Hall.
Robbins, F. S., A. G. F., Penna., Haddon Hall.
Scanland, N. B., M. M., Md. & Penna., Shelburne.
Scarles, R. J., Pennhurst.
Schwartz, C. L., A. G. M., St. Louis Refr. Car Co., Alamac.
Sheahan, J. F., S. M. P., A. B. & A., Strand.
Small, W. T., M. N., S. P., Haddon Hall.
Smeltzer, G. H., Supt. Loco. Car Shops, Phila. & Reading.

Smith, R. E., G. S. M. P., Atlantic Coast Line, Chelsea.
 Spence, A. N., Traveling Insp., Southern, Arlington.
 Watkins, H. W., M. C. R., S. P., Chalfonte.
 Younger, T. W., S. M. P. Northern District Southern Pacific, Haddon Hall.
 Zweibel, C. A., G. F. C. D., Atlantic Coast Line, Elberon.

ADDITIONAL MASTER MECHANICS' REGISTRATION

Bawden, Wm., M. M. Term. R. R. Assn. of St. L., Elwood.
 Brewer, J. W., D. S. M. P., B. & O., Dennis.
 Cunningham, J. L., M. M., Phila. Balt. & Wash., Chalfonte.
 Davis, J. H., E. E., Balt. & Ohio, Glaslyn Chatham.
 Dawson, L. L., S. M. P., Ft. Worth & Denver City, Brighton.
 Dooley, W. H., M. M., C. N. O. & T. P., Dennis.
 Drury, M. J., S. S., A. T. & S. F., Traymore.
 Dunn, J. F., A. G. M., Oregon Short Line, Chalfonte.
 Gaines, F. F., S. M. P., Central of Ga., Dennis.
 Gibbs, A. W., C. M. E., Penna., Chelsea.
 Gray, Guy M., S. M. P., B. & L. E., Lexington.
 Henry, J. M., M. M., Penna., Chalfonte.
 Hill, Rufus, Ex. M. M., Penna.
 Jacobs, Henry N., Consulting Engineer, St. Louis & San Francisco, Marlborough-Blenheim.
 Keiser, C. B., M. M., Penna., Marlborough-Blenheim.
 Lovell, Alfred, Traymore.
 McNulty, F. M., S. M. P., Monongahela Conn., Chalfonte.
 Mengel, J. C., M. M., Penna., Chalfonte.
 Muhlfeld, J. E., Special Representative, various railroads, Marlborough-Blenheim.
 Quigley, Jos., Retired, C. N. O. & T. P., Pennhurst.
 Ralston, J. A., M. E., Union, Brighton.
 Scarles, E. J., Pennhurst.
 Sheahan, J. F., S. M. P., A. B. & A., Strand.
 Street, C. F., Locomotive Stoker Co., Marlborough-Blenheim.

ADDITIONAL MASTER CAR BUILDERS' GUESTS

Andrews, David, Finan. M. P. Dept., B. & O., Wittel.
 Andrucetti, Jas. H., Asst. Electric Eng., Chicago Northwestern, Shelburne.
 Baird, B. H., Car Draftsman, S. Pac. Ry., Traymore.
 Baker, F. H., Car Foreman, N. Y. Central Lines.
 Baumbush, A. J., Gen'l Foreman, N. Y. C. & H. R., Pennhurst.
 Beahm, P., Machinist Helper, Penna., Matleydean Cottage.
 Behn, Peter, Mechanical Helper, Penna., Natley Dean Cottage.
 Billan, L. S., Asst. Elec. Eng., Balt. & Ohio, Arlington.
 Blackburn, H. E., Instructor of Apprentices, Erie, Y. M. C. A.
 Brewer, J. W., D. S. M. P., B. & O., Dennis.
 Bromley, Joe, Inspector Safety Appliances, Interstate Commerce Commission.
 Brown, B. S., Fore. Office Mech. Eng., Penna., Iroquois.
 Brown, J. D., Chief Elect., B. & O., Arlington.
 Burton, Rollin B., Asst. Consulting Eng., Southern Pacific, Dennis.
 Butts, H. M., Master Painter, N. Y. C. & H. R.
 Campbell, R. F., Commercial Agt., P. & R., 919 La Fayette Bldg.
 Charlton, G. J., Gen. Car. Foreman, D. L. & W., Pennhurst.
 Cotton, W. A., Chief Clerk to Gen. Mch. Supt., Erie, Marlborough-Blenheim.
 Craig, B. C., Gen. Safety Appliance Inst., B. & O., Haddon Hall.
 Cramwell, E. T., Motive Power Shop, B. & O., Pennhurst.
 Creel, E. F., Gen. Foreman, B. & O., Chelsea.
 Cunningham, W. J., President Asst., N. Y. N. H. & H., Chalfonte.
 Dobson, F. L., Asst. M. M., Penna.
 Doughty, R. S.
 Downs, M. D., Foreman Freight Car Repairs, Penna., Teneyck.
 Driscoll, Frank E., Purchasing Dept., Erie, Shelburne.
 Drury, Mrs. M. J., Supt. Shops, A. T. & S. F., Traymore.
 Duffy, A. F., Inspector Safety Appliances, Interstate Commerce Commission.
 Ewald, C. J., C. F., B. & A., Schlitz.
 Fouse, Frank, General Foreman Car Dep't, Northern Railway of Costa Rica, Chalfonte.
 Fonske, F. J., Asst. Foreman, Penna., Schlitz.
 French, E. L., Gang Foreman N. Y. Division, Penna., Devonshire.
 Gardner, R. H., Inspector Safety Appliances, Interstate Commerce Commission.

Grim, C. B., Foreman Car Shop, Atlantic City.
 Goldbaugh, H. A., Gen'l Foreman, B. & O., Pennhurst.
 Goodfellow, Joseph W., Machinist, Penna.
 Hamilton, E. E., Supervisor of Operating Statistics, B. & O., Glaslyn-Chatham.
 Harrold, J. W., C. C. to Frt. Agt. Atlantic City, West Jersey & Seashore, 15 Chelsea Place.
 Hendley, C. W., Southern, Southern.
 Herring, W. M., Chief Clerk G. S. M. P. & E., Southern, Arlington.
 Howard, F. A., Inspector Safety Appliances, Interstate Commerce Commission.
 Hustis, J. H., Jr., N. Y. N. H. & H., Chalfonte.
 Jacobs, Henry W., Consulting Eng., St. Louis & San Francisco, Marlborough-Blenheim.
 Jellison, B. T., P. A., C. & O., Marlborough-Blenheim.
 Kelley, R. F., Gen. Frt. & Passenger Agt., Wheeling & Lake Erie, Alamac.
 Kidd, C. M., Gen. Air Brake Inspector, N. & W., Strand.
 King, J. H., C. C. Road Dept., N. Y., O. & W., Phillip House.
 Lacey, A. B., P. A., Virginian, Haddon Hall.
 Lammerding, F. A., Engine Foreman, W. J. & S.
 Leonard, W. W., Insp. Elect. Dept., Balt. & Ohio, Arlington.
 Lovell, D. H., Supt., Penna.
 Lowe, V. J., Foreman Car Shop, P. & R., Somerset.
 Major, Thomas, Foreman Car Inspector, Penna.
 McArdle, Joe P., Inspector Safety Appliances, Interstate Commerce Commission.
 McCormick, Angus, Genl. Foreman, B. & O., Lexington.
 McGrath, Charles H., C. C. to D. of P., So. Pacific, Traymore.
 Merz, C. B., Chief Clerk Purchasing Dept., Southern Line, Schlitz.
 Morris, Wm. W., Chief Reg. Clerk, Penna.
 Moses, F. K., Gen. Foreman, B. & O., Chelsea.
 Murray, John A., Soliciting Freight Agent, D. L. & W., Strand.
 Noble, H. S., Asst. Road For. of Engines, Penna., Chalfonte.
 Noviok, J. H., Finan Car Builder, Vandalia, Elberon.
 Pascal, M. V., Foreman M. P. Dept., B. & O., Millers Cottage.
 Philpot, J., Foreman Machine Shop Car Dept., N. Y. C. & H. R., Pennhurst.
 Prendergast, A. P., Supt. Mchy., Texas Pacific, Brighton.
 Purt, A. F., Engineer, Penna., Devonshire.
 Quigley, Jos., Retired, C. N. O. & T. P., Pennhurst.
 Ralston, J. A., M. E., Union, Brighton.
 Rauschart, E. A., Genl. Foreman, B. & O., Lexington.
 Rhodes, Robert S., E. E., N. Y. Central, Alamac.
 Robbins, E. C., Haddon Hall.
 Rockwood, E. B., Storekeeper, B. & O., Schlitz.
 Rule, Geo., Engineer, B. & O., Bartram.
 Schmidt, R. L., Genl. Foreman, B. & O., Millers Cottage.
 Schofield, W. B., Asst. to President, Delaware & Hudson, Marlborough-Blenheim.
 Schreck, Benjamin F., General Foreman, Phila. & Reading, 2010 Pacific Avenue.
 Sindhall, E. W., Foreman Car Repairs, Boston & Albany, Schlitz.
 Stanton, E., Ch. Joint Car Insp., N. Y. Phila. & Norfolk, Westminster.
 Stevens, A. H., Traymore.
 Sugg, C. R., Elec. Eng., A. C. L., Dennis.
 Thomas, H. T., M. M., Detroit & Mackinac, Haddon Hall.
 Torback, F. S., General Finan M. P. Dept., B. & O., Wittel.
 Ware, J. V., Chief Clerk to M. M., Canadian Northern, Lexington.
 Weldin, H. F., Master Boiler Maker, Pennsylvania, Shelburne.
 White, H. M., Engineer, B. & O., Bartram.
 Wiess, A. J., Gen. Foreman, B. & O., Chelsea.
 Wilkins, O. P., Foreman Painter, N. & W., Wellsboro.
 Williamson, C. H., Draftsman, Penna., Iroquois.
 Wright, W. R., Inspector Safety Appliances, Interstate Commerce Commission.

A NEW RAILROAD IN RUSSIA.—The Odessa-Bakhmut Railroad, which was opened for traffic in February, 1914, reduces the distance from Odessa to Moscow by 130 miles and to St. Petersburg by 114 miles. It traverses the northeastern part of the province of Kherson and will solve the problem of grain transportation for this section. Steps are being taken for the construction of a railroad between Odessa and Okkerman, and various plans have been discussed for direct connection with Nikolaief, which is now reached by a circuitous land route or by sea.

Conventionalities

C. K. Cairns, of the American Tool Works, is stopping at the Wiltshire with his bride of ten days.

Daniel M. Brady, of the Brady Brass Company, is attending his fortieth consecutive convention. He started attending in 1875.

The arrivals from Chicago on Tuesday included Mr. and Mrs. Burton W. Mudge and "Junior" Mudge. They are at the Marlborough-Blenheim.

M. C. Bowerson, recently appointed master mechanic of the



Right to Left: G. I. Evans, Superintendent Angus Locomotive Shops, Canadian Pacific; Mrs. Evans and Her Sister, Miss Peel

Toledo & Ohio Central, at Bucyrus, Ohio, is attending the conventions this year for the first time.

E. W. Summers, of Pittsburgh, had to leave Mrs. Summers home this year because of a dislocated knee. He is leaving early in order to have "Bonesetter Reese" look over the patient next Monday.

George P. Nichols, of George P. Nichols & Bro., accompanied by Mrs. Nichols, was among Wednesday arrivals. Owing to the demands of business, Mr. Nichols was unable to be present last year.

Frank W. Furry, general manager of the Ohio Injector Company, is now of age as a convention visitor, this being the twenty-first year that he has attended. His first conventions were those held at Saratoga in 1894.

Alex. Kearney, assistant superintendent of motive power of the Norfolk & Western, is not accompanied by Mrs. Kearney this year. Mr. Kearney apologizes by saying that he and Mrs. Kearney are going abroad together in July.

Frank McManamy, chief inspector of locomotive boilers of the Interstate Commerce Commission, is here. Mr. McManamy stated that a number of the commission's inspectors will be here next week for the master mechanics' convention.

M. O'Connor, until recently with the Chicago Pneumatic Tool Company, has accepted a position in the sales department of the Ingersoll-Rand Company, with headquarters at Chicago. Mr. O'Connor is attending the conventions as usual.

O. C. Gayley, vice-president of the Pressed Steel Car Com-

pany, arrived Wednesday. Mr. Gayley has a delightful summer home near Port Washington, on Long Island, but the attraction of many friends at the conventions is sufficient to draw him from it.

J. A. Kinkead, of the Parkesburg Iron Company, is one of the most happy men at the convention. For the past few months the factory has been running twenty-four hours, six days a week, and the end is not yet in sight. Is it any wonder he is optimistic?

One of the interested visitors this week has been Maurice Coburn, principal assistant engineer of the Vandalia, with headquarters at St. Louis. While Mr. Coburn is a civil engineer, as a railway officer he takes a keen interest in all branches of railway operation.

A. B. Corinth, general inspector of the Atlantic Coast Line badge 116, wishes to state that his name has been misspelled for years in the registration list. The able managers of that publication have invariably put N. before I, and Mr. Corinth objects to misplaced eyes.

Bob Alter of the American Tool Works Company finds it necessary to leave on Saturday in order sail on the White Star steamship Laurentic which leaves Montreal on June 20th. He is going abroad on an extended business trip and will be accompanied by Mrs. Alter. This is his third trip abroad.

Posty's hat is in the ring. We move that the nominations be closed and that the secretary be instructed to cast one ballot for his election as a member of the executive committee from the third district. What's the use in looking any



Right to Left: J. R. Schrader, Assistant Master Car Builder, New York Central & Hudson River; George Thompson, Master Car Builder, Lake Shore & Michigan Southern; J. T. Flavin, Master Mechanic, Chicago, Indiana & Southern, and J. E. Buker, Chicago Car Heating Company

further when such thoroughly good timber can be had for the asking?

H. E. Blackburn, apprentice instructor of the Erie at Dunmore, Pa., came to the convention by way of the meeting of the National Association of Corporation Schools, at Philadelphia. He reports that the session on Wednesday afternoon, at which several papers of special interest to the railroads were presented, were exceptionally good.

Queer things happen sometimes. When W. F. Kiesel, Jr., assistant mechanical engineer of the Pennsylvania Railroad, a chairman of an important committee of the M. C. B. Association and one of its most important members, registered, his name

could not be found in the card index and he was forced to content himself with a guest's badge.

W. H. Johnson, superintendent of the Winton-Salem Southbound, was a visitor Wednesday and Thursday. Mr. Johnson and C. E. Postlethwaite of the Pressed Steel Car Company, are both former employees of the Norfolk & Western and had a great time recounting old-time experiences. This was Mr. Johnson's first visit to Atlantic City.

E. S. Wortham has attended the conventions for the past twelve years as a railroad man, but these are his first as a supply man. Mr. Wortham will be remembered by many conventionites as the purchasing agent and later as assistant to the vice-president of the Chicago & Alton. He is now vice-president of the Ross-Wortham Company.

It is told of one of the ladies attending the conventions that when she emerged from the union station in Washington, en route to the Railway Storekeepers' convention, held there in May, on sighting the Washington monument she exclaimed: "Oh! there's Cleopatra's Needle." For further particulars apply to the general storekeeper of the New York Central.

These are Louis F. Body's first M. C. B. and M. M. conventions. Mr. Body, after a service of 13 years with the Sherwin-Williams Company, has been made manager of the street railway sales department of his company. The Sherwin-Williams



Left to Right: E. E. Jett, Morris & Company; M. F. Covert, Assistant Master Car Builder, Swift Refrigerator Transit Company; G. F. Laughlin, General Superintendent, Armour Car Lines, and A. La Mar, Master Mechanic, Pennsylvania Lines West

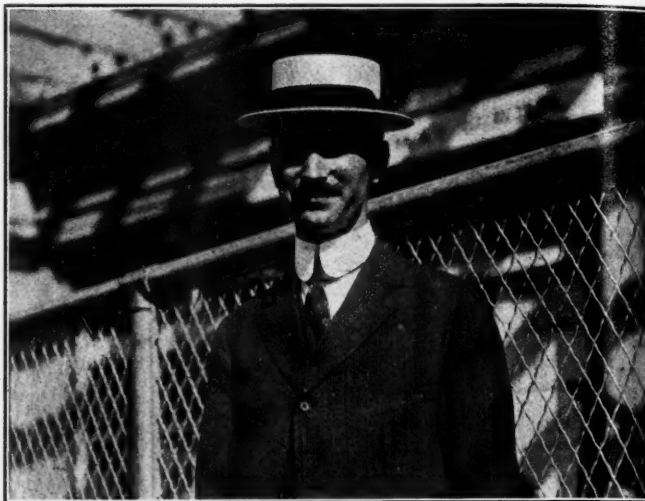
"old guard," Thomas Madill, E. M. Richardson, W. B. Albright and R. L. Graves, are all here—at the Marlborough-Blenheim, as usual.

George H. Musgrave, general sales agent for the Star Brass Manufacturing Company, who has attended this convention twenty-eight consecutive years, is introducing V. V. Straub, who is the railroad representative for that company. Mr. Straub was formerly with the New York Central in various capacities for eleven years, his last location being at New Durham, N. J., shops as division storekeeper.

It is not generally known that D. R. MacBain, president of the Master Mechanics' Association, takes a great interest in Scotch folklore and customs. It is rumored that George Thomson, the master car builder of the Lake Shore at Englewood, Ill., who has been advanced to that position within the past year, is equally interested in these things, and that he and Mr. MacBain often get together and spend an evening playing the bagpipes.

C. L. Bundy, general foreman of the Lackawanna at Kingsland, and J. P. Brogan, general foreman at Hoboken, arrived Wednesday. Mrs. Brogan came with them and Mrs. Bundy is expected on Friday. The rapid introduction of all-steel passenger equipment on the D., L. & W. and the placing of steel underframes under the old equipment promises soon to more or less change the nature of the work at the Kingsland shops.

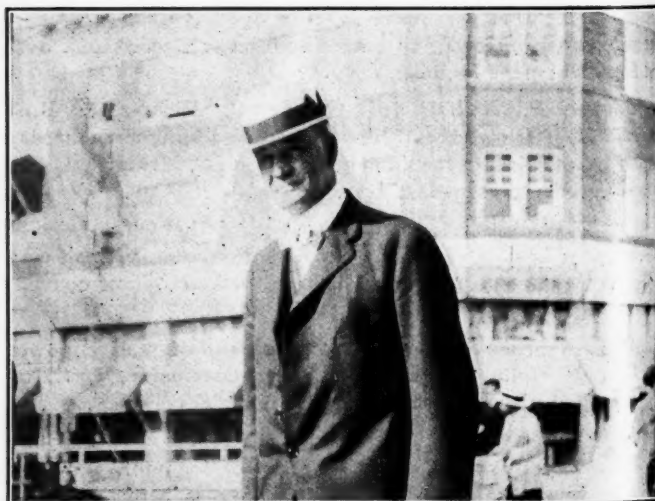
The following chief interchange inspectors are present at



Frank Zeleny, Engineer of Tests, Chicago, Burlington & Quincy

the convention this year: F. C. Shultz, Chicago; H. Boutet, Cincinnati; W. J. Stoll, Toledo; J. W. Hogsett, Fort Worth; T. J. O'Donnell, Buffalo; H. J. Halbert, St. Louis; George Lynch, Cleveland; J. E. Vittum, Columbus, and A. R. Kipp, Middletown, New York. Mr. Shultz is president of the Chief Interchange Car Inspectors and Car Foremen's Association.

R. C. Vilas, president of the Pyle-National Electric Headlight



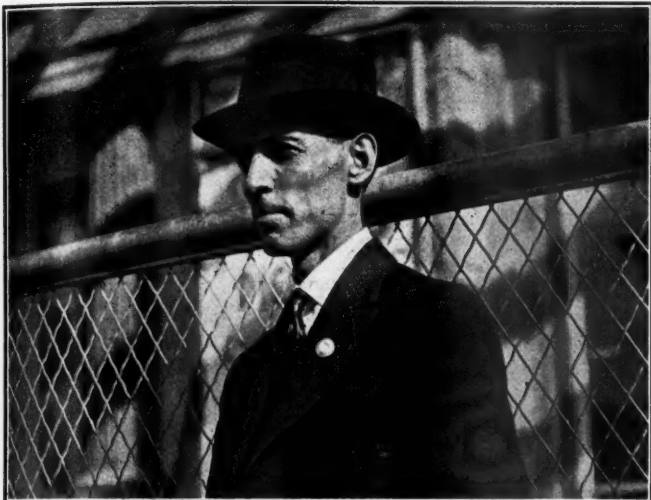
R. W. Burnett, General Master Car Builder, Canadian Pacific Railway

Company, is more than a golf bug. He is a real player. He made the low qualifying round for the championship of the Glen View Club at Chicago last year; and this year he has already shot eighteen holes on the Exmoor course in 76. Mr. Vilas, William Miller, vice-president, and J. Will Johnson, general

manager, of the Pyle-National Company, are all at the Marlborough-Blenheim.

J. W. Hibbard, formerly secretary and treasurer of the Grip Nut Company, who resigned his position and retired from business a year or so ago, is renewing his many acquaintances in Atlantic City at the conventions this year. Mr. Hibbard declared he would come each year and visit with his friends, "business or no business."

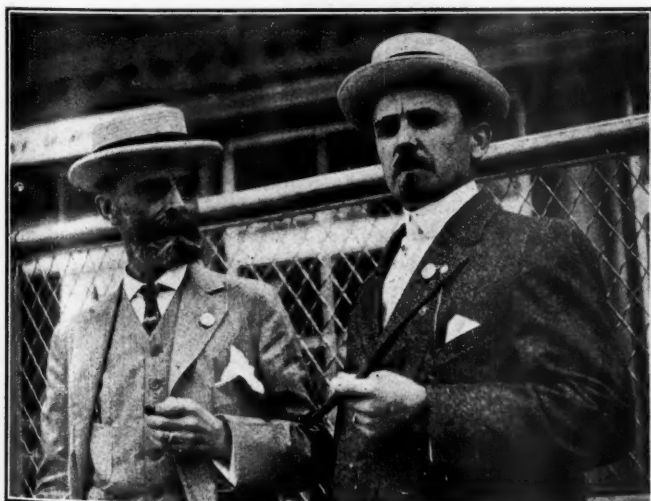
E. D. Gregory, general manager of the Frazer Paint Com-



C. J. Wymer, General Car Foreman, Belt Railway of Chicago

pany, received a telegram yesterday afternoon calling him home; a fire having occurred in the Detroit factory on Wednesday night. The entire basement was flooded, but Mr. Gregory says that while all of the material on hand for filling outstanding orders is undoubtedly spoiled, he is confident that the company will be able to fill these orders from its Baltimore factory.

E. L. Richardson, general foreman of the Norfolk & Western at Roanoke, Va., who has been an interested vis-



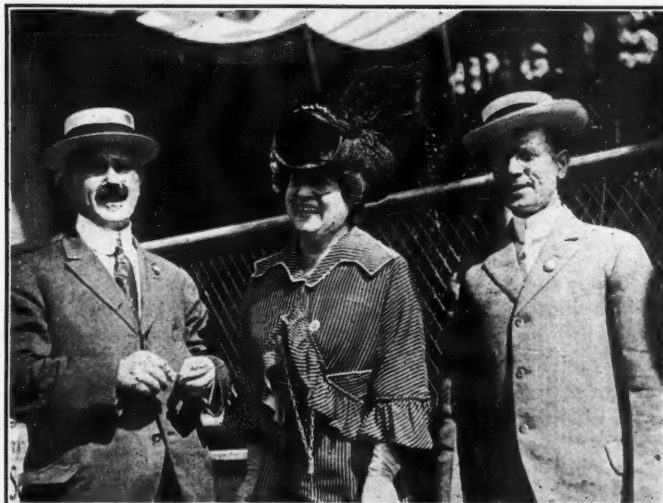
Left to Right: C. F. Thiele, General Car Inspector, Pittsburgh, Cincinnati, Cleveland & St. Louis, and O. J. Parks, General Car Inspector, Pennsylvania Lines West

itor at some of the past conventions, is unable to be present this year. Mr. Richardson is much interested in the mechanical stoker problem, as he has a large number of

stoker equipped engines working out of his terminal. These include locomotives equipped with three different types of mechanical stokers.

H. W. Belnap, Chief Inspector of Safety Appliances, of the Interstate Commerce Commission, is accompanied to the conventions this year by six of the inspectors. These inspectors, with the states to which they are assigned, are F. A. Howard, Connecticut; J. P. McArdle, Massachusetts; N. R. Wright, California; A. F. Duffee, Pennsylvania; Joseph Bromley, New York; R. H. Gardner, Colorado. Mr. Belnap arranges for different inspectors to attend the conventions each year, and, as the matter is handled, each inspector gets to the conventions about every third year.

W. J. Cunningham, president's assistant of the New York, New Haven & Hartford, and assistant professor of transportation at Harvard University, and J. H. Hustis, Jr., son of President J. H. Hustis, of the New Haven, arrived yesterday and are at the Chalfonte. Prof. Cunningham was a railroad man before he entered university work, and when Mr. Hustis became president of the New Haven he induced Mr. Cunningham, who had been associated with him on the Boston & Albany, to become his assistant. Mr. Cunningham still lectures on transportation at Harvard, however. J. H. Hustis, Jr., is a student at Harvard, and is just completing



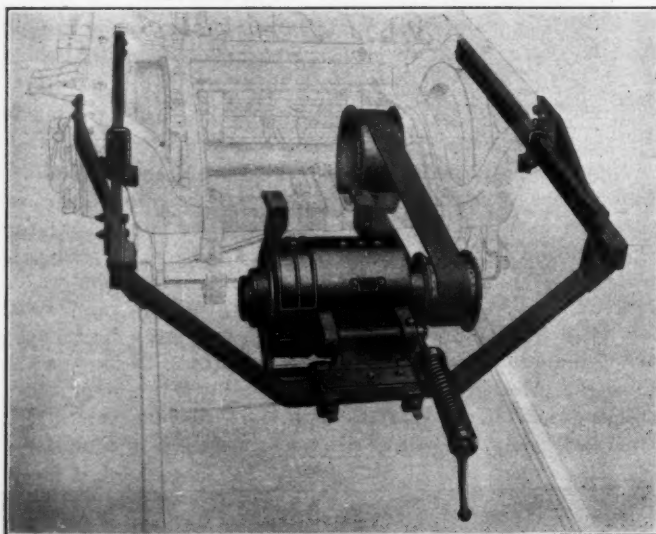
Right to Left: Robert Quayle, General Superintendent Motive Power and Car Department, Chicago & North Western; Mrs. E. W. Pratt, and E. W. Pratt, Assistant Superintendent Motive Power and Machinery, Chicago & North Western

his junior year. Messrs. Cunningham and Hustis will be here until Sunday.

"The Boer War was an epoch making trial of tactics and arms in the history of warfare," says Captain Vandewatering, late of the Transvaal, S. A., who is attending the convention in the interest of Valentine & Company. Fighting in close formation is a thing of the past, and the 40,000 Boers who opposed 500,000 Englishmen have probably changed all of the old methods of attack and defence. Captain Vandewatering was captain of the mounted police in Johannesburg at the time of the Jamison raid. It was he who arrested John Hays Hammond, who was sentenced to death by Paul Kruger, but was subsequently pardoned. During the Boer War Captain Vandewatering was captured by General Buller's force and confined in Johannesburg. He was paroled, but broke his parole and joined General De Wet, who made him captain of the scouts. Since the end of the war Captain Vandewatering has been in America and for several years with Valentine & Company.

AXLE GENERATOR SUSPENSION

The Safety Car Heating and Lighting Company has made a careful study of the service conditions of axle lighting equipment, and has developed a type of generator suspension which it is claimed has successfully provided against the difficulties arising from the stretching of the belt. The advantages claimed for this type of suspension are constant belt tension, accessibil-

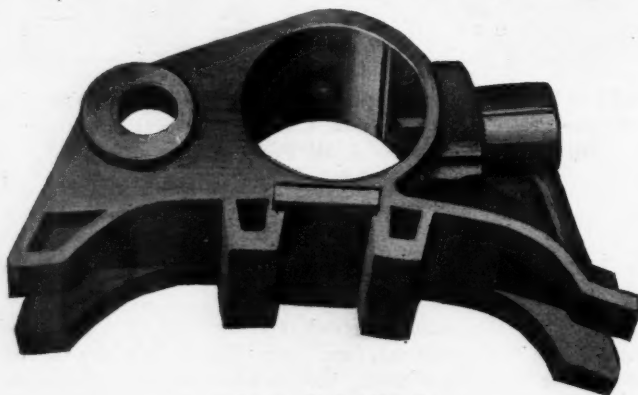


Suspension for Car Lighting Generators

ity of the operating and wearing parts, strength, simplicity and ease of application to the car. It is exhibited at the Safety Company's booth on the pier.

BRAKE HEAD

The illustration shows a design of brake head which has recently been brought out by the Chicago Railway Equipment Company to replace its No. 1538 brake head. While the new design interchanges in every respect with the one which it supercedes it has been arranged to allow more clearance under the



Creco Brake Head

main hanger hole, thus permitting the use of heavier hangers. It is also claimed to have approximately 50 per cent. greater strength at the toes when there is no supporting load on the center shoe lugs.

INTERIOR FINISH OF STEEL COACHES.—A section of the interior of a passenger car of all-steel finish forms a part of the exhibit of the Hale & Kilburn Company on the Pier this year. All furnishings, as well as the interior finish, are products of this company. The exhibit is so located that one looks through the car windows directly over the sea.

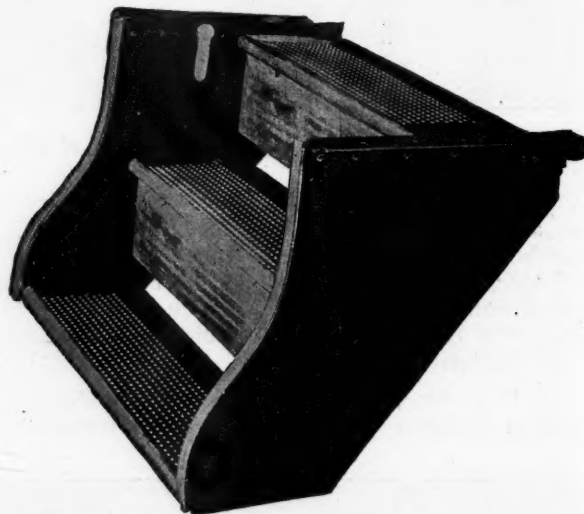
JOURNAL BOX WITH A PINLESS LID

A malleable iron journal box designed to take either a pinless lid or the usual M. C. B. lid is included in the exhibit of the Gould Coupler Company. The design of the M. C. B. lid lugs is slightly changed to provide bosses which engage corresponding recesses in the lid. These bosses are of circular form, flattened on two sides, while the recesses in the lid are so designed that the lid may be applied only at the point where the spring pressure tending to hold the lid in place is at its maximum; at all other points it is securely locked in position. This design is such as to prevent loss of the lid in service. The lid is held in place by a helical spring which bears against a suitable shoulder on the lid. A guiding stem passes through the spring and is connected to the lug on the box.

In designing this lid interchangeability with the M. C. B. lid has been provided for so that if necessary for repairs any M. C. B. lid can be substituted.

KASS SAFETY STEP

The Kass safety step for passenger cars, shown in the illustration, is furnished complete for attachment to the car. It is one of the newest specialties of the Acme Supply Company, Chicago, and is of a simple and inexpensive construction which at the



Kass Safety Passenger Car Step

same time combines safety and efficiency in the highest degree. Three steps is the usual standard, the second and top steps having the riser pressed from the same heavy sheet of steel. On these three steps, in a depression, are secured the treads. They are stamped from heavy steel plate and are made with a non-slipping surface. The treads are so designed that they can be reversed after the surface has become worn, and the back edge placed to the front, giving the tread a double life.

RETURN ROLLER SIDE BEARING.—A side bearing has been designed by C. L. Meister, mechanical engineer, Atlantic Coast Line, which consists of a single cast steel roller and a housing which is open at the ends. The pins which hold the roller in the side bearing are located off the roller center, and at different positions on the two ends. These pins move in guides in the housing and are so located that the roller cannot slide along the bottom plate. The roller is so weighted that it tends to return to the central position automatically. These side bearings have been tested on the Atlantic Coast Line for nearly a year and the results are claimed to be very satisfactory. They are handled by the National Malleable Castings Company, Cleveland, Ohio.